

THE IRON AGE

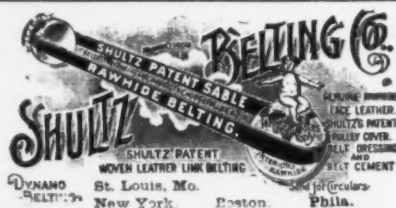
A Review of the Hardware, Iron and Metal

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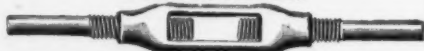
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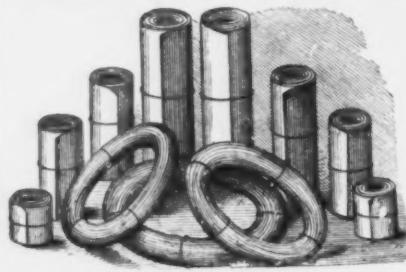
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THE IRON AGE.

THURSDAY, APRIL 13, 1899.

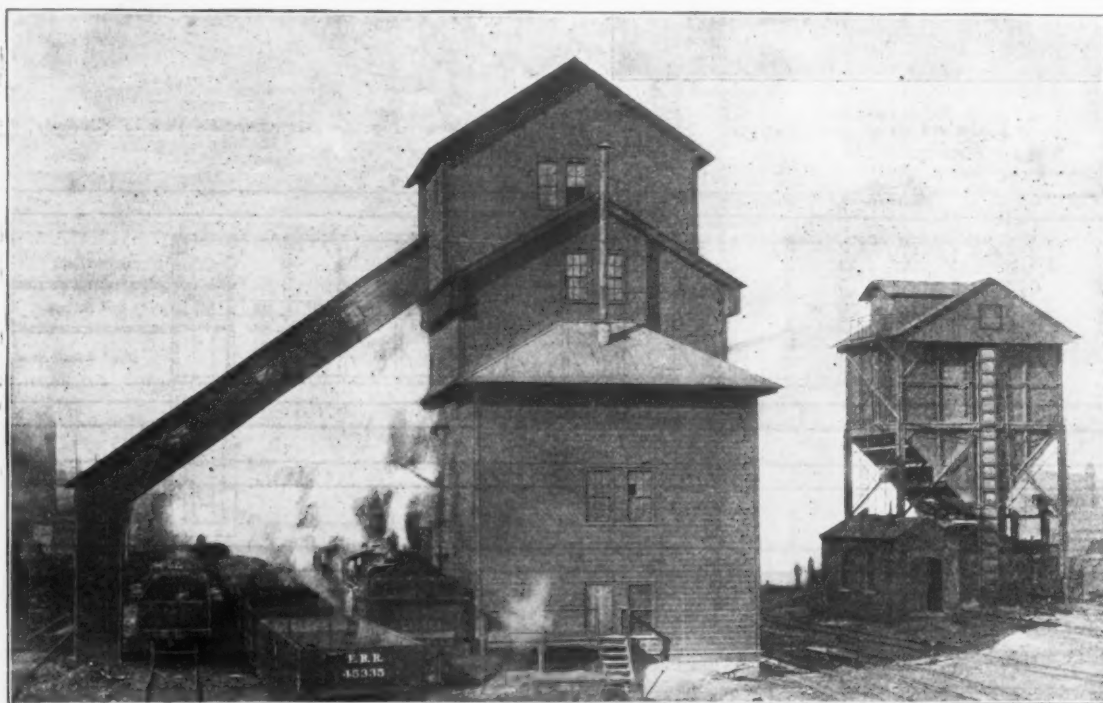
New Coaling Station of the Erie Railroad.

The Erie Railroad Company about two years ago took up for consideration, in connection with the elevating of the track system through Jersey City, the improvement of the methods employed there to coal their locomotives and dispose of the ashes. After exhaustive investigation of different plans and appliances, by C. W. Buchholz, Chief Engineer, a plant has been erected that is remarkably efficient and economical. It was not only desired to reduce the cost of operation, but to concentrate at Jersey City the work of cleaning and coaling engines previously done at other points, and to also coal as they willed either lump anthracite or run-of-mine bituminous, and to utilize the inexpensive bird's-eye and rice

a hand wheel and determines the quantity of coal that is to be placed in each bucket.

The loaded buckets on reaching the head wheels of the carrier become inverted and discharge their contents into a chute leading to a conveyor, Fig. 2, which runs horizontally through the lantern of the 2500-ton storage pocket. This is a double strand, suspended flight conveyor, and by it the coal is deposited in any of the fourteen bins composing the pocket, the hand wheels shown serving to open and close the gates in the bottom of the steel trough of the conveyor.

The bottom of the storage pocket is inclined in two directions, so that the coal stored in each bin will naturally flow to the two points of egress—one coaling chute at either side, or a total of 28 for the 14 bins. What is known as an under cut gate has been adopted for use in connection with these chutes. The operation



NEW COALING STATION OF THE ERIE RAILROAD.

sizes of anthracite, using as a binder a small proportion of bituminous. The problem, therefore, was a plant that would store sufficient coal to meet all probable emergencies, that would handle the largest and smallest sizes of coal, that would mechanically mix bituminous and anthracite, and that would do all this work most economically.

Fig. 3 shows the carrier employed for taking the coal to the storage pocket. It consists of a line of continuous overlapping buckets rigidly secured to two strands of chain, by which the coal is carried along the horizontal run, and up the vertical leg without the possibility of spilling. Above the horizontal run and at the left of the illustration are two track hoppers, into which the coal to be stored is dumped and to each of which is fitted an automatic feeding chute of the type shown in Fig. 6, which is supplied with a pair of small wheels designed to travel on the sides of the overlapping buckets. As the line of buckets moves forward the wheels follow the convex and concave contour of the sides, and the lip of the chute is alternately raised and lowered. The amount of this raising and lowering is regulated by

of coaling is as follows: The tender having been brought to position, the fireman, by means of a hand wheel shown, lowers the counterweighted chute, and then pulls down on a lever, which opens the under cut gate. This gate operates by describing an arc of a circle, and in closing cuts up through the stream of coal, so that even a very large lump cannot prevent its instant closing. After shutting the gate the fireman operates the hand wheel to swing up the chute, that it may not form an obstruction to the stack of the locomotive next following. While he is loading his, seven other firemen may be coaling their locomotives—i. e., four may be coaled at each side of the pocket simultaneously, and the time required is from two to four minutes.

The machinery readily places 90 net tons of coal in storage per hour, and it is the practice to use one of the track hoppers exclusively for bituminous and the other for anthracite, which renders it unnecessary to change the angles of the automatic gates. When the proper inclinations have been found they are retained until a change of practice dictates alteration. The lump anthracite is deposited in certain bins of the pocket, the

bituminous in others, and when it is desired to store the mixture of bird's-eye or rice and bituminous the two automatic feeding chutes are run simultaneously, the wheels on their hinged ends being adjusted so that one chute will deliver to each one of the line of buckets

out relative expense is a characteristic of the installation. An additional example is the method employed to lubricate the coal carrier and also the ashes carrier. The two strands of chain to which the buckets are attached are connected by shafts, which serve as journals for the small rollers that carry the conveying line. In the hubs of these rollers are inserted oil tubes, or curved fingers, and adjacent and parallel to the track on which the rollers run, and near the automatic feeding chutes, is placed a long, narrow oil pan, from which the fingers scoop sufficient oil to lubricate the axles of the rollers and the joints of the chain. The line of buckets is about

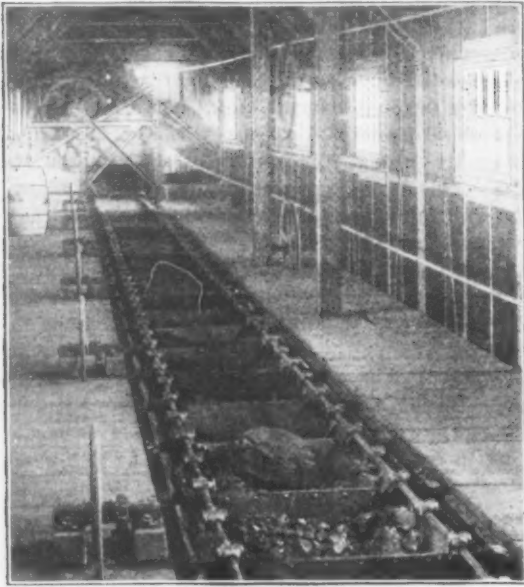


Fig. 2.—View of Coal Conveyor.

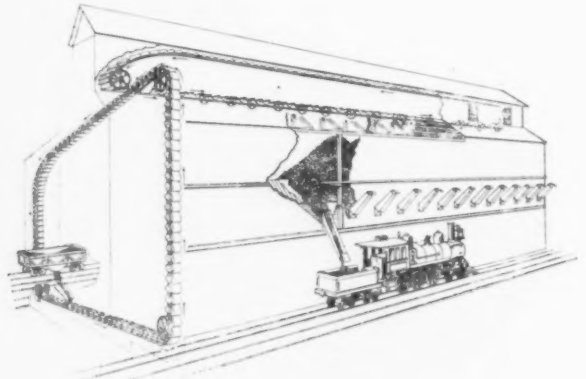


Fig. 3.—Diagrammatic View of Conveyor.

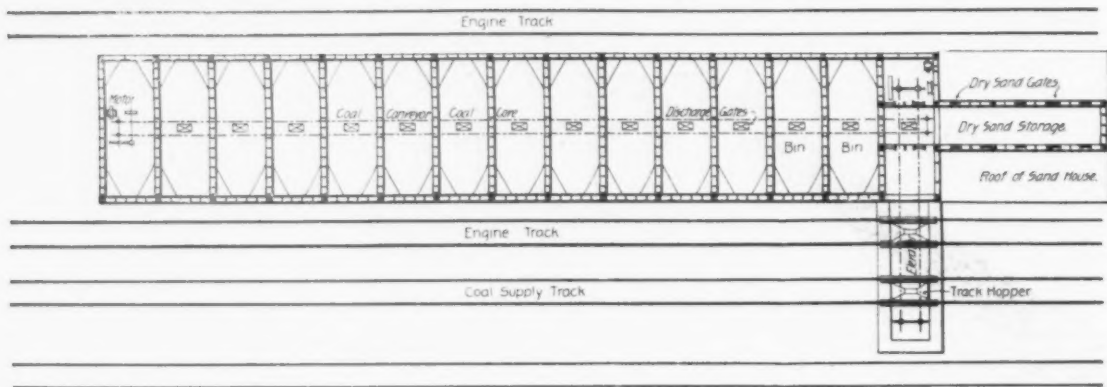


Fig. 4.—Plan.

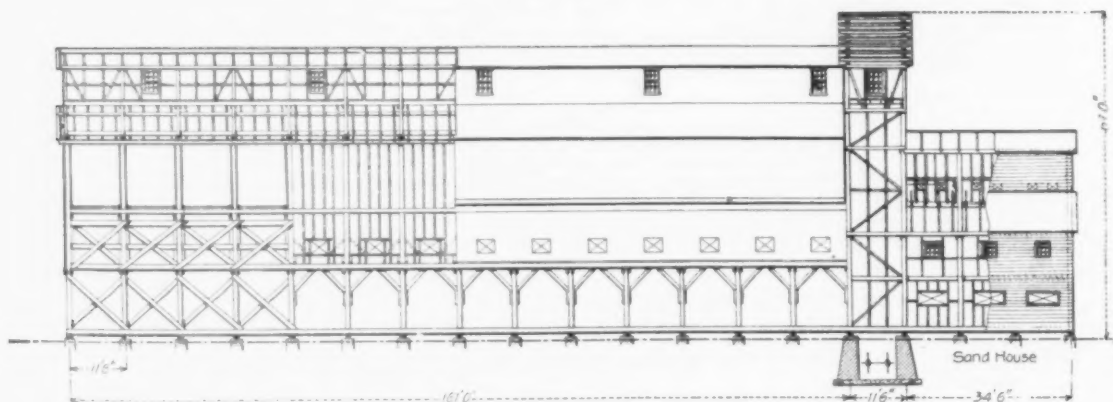


Fig. 5.—Longitudinal Sectional Elevation of Coal Shed.

NEW COALING STATION OF THE ERIE RAILROAD.

a certain amount of bituminous, while the other will place the desired percentage of small anthracite with it. The two kinds of coal become thoroughly mixed as they are transferred from the carrier to the overhead conveyor and from the conveyor to the mixture bins. This mixing of the inexpensive sizes of anthracite with bituminous is, therefore, accomplished without any additional expense.

The attainment of desired and essential results with-

225 feet long and travels at 50 feet per minute, so that the lubricating is done in less than five minutes, after which the oil pan is shifted out of the reach of the fingers. This oil reservoir is placed below the general level of the track, to prevent the fingers from striking its ends on reaching and passing it, and to permit the fingers to come in contact with the oil the track is depressed. This means of oiling not only effects economy by the labor saved, but is sure and thorough.

In the ashes handling part of the plant the carrier used to take the ashes to the storage pocket is of the same type as the coal carrier, but the method of feeding is different. As shown by Fig. 11, the tunnel in which the 100 feet horizontal length of the carrier is placed is located between two tracks. Beneath each of these tracks are two double ash pits, Fig 9, each 25 feet long, and each hopped division of these four pits is fitted with a swinging gate, which regulates the flow of the ashes to an inclined screw conveyor connecting the hopper and the carrier. Each one of these pits has capacity to hold the ashes from at least six locomotives, and assuming that it requires five minutes to draw the ashes

The ashes handling machinery is driven by one 19 horse-power gas engine, and by means of friction clutches any one of the eight screw conveyors is readily thrown into or out of operation, this being done by a man in the tunnel, who also attends to the opening and closing of the swinging regulating gates. This man and an engineer are required to attend the ashes handling machinery while it is in operation, and to operate the coal handling machinery there are employed one 38 horse-power gas engine and four men, one an engineer. In driving the two sets of machinery Manila rope transmissions and equalizing gears are employed. The latter have previously been described (*The Iron Age*, September 8,

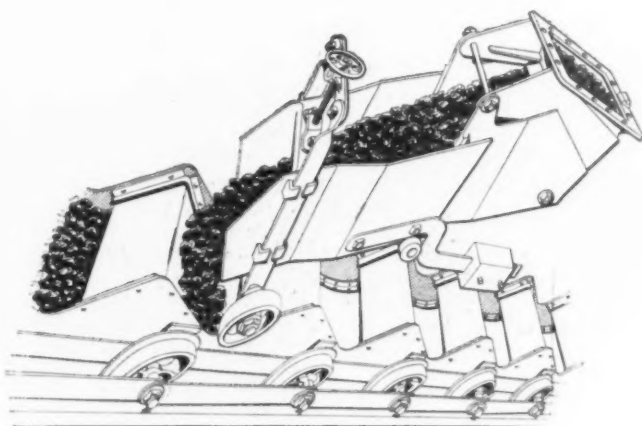


Fig. 6.—Automatic Feeding Chute.

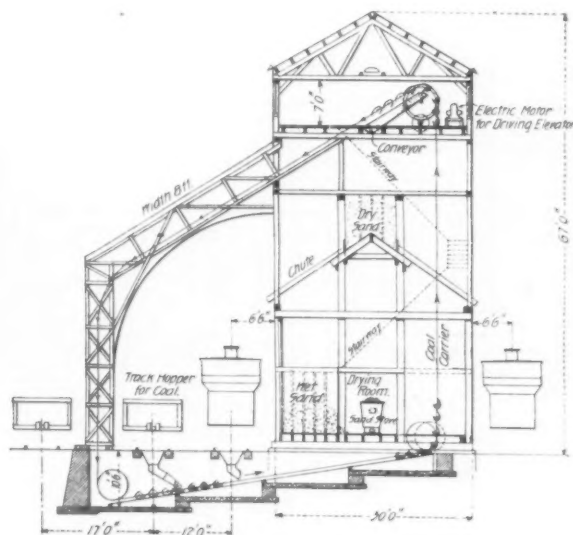


Fig. 7.—Transverse Vertical Section of Coal Shed.

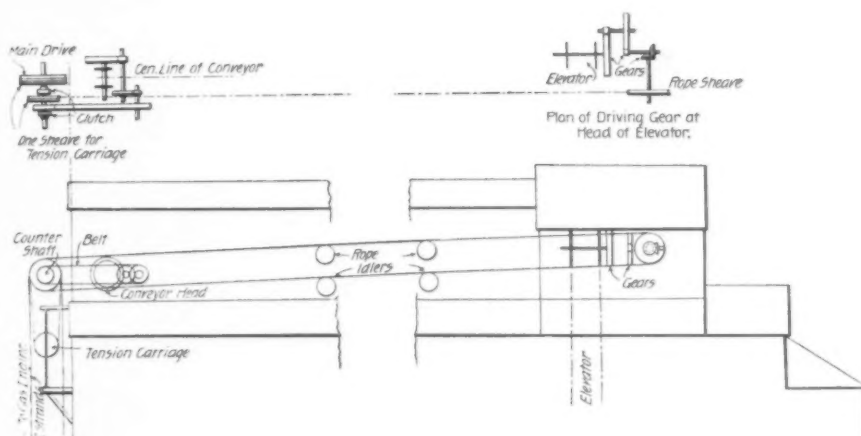


Fig. 8.—Driving System.

NEW COALING STATION OF THE ERIE RAILROAD.

from one, in 20 minutes 24 locomotives may be cleared at the four pits. The conveying machinery can empty the pits in half this time, rendering it unnecessary to run it continually. The steel storage pocket, Fig. 10, to which the ashes are carried, will hold the ashes from about 150 locomotives, though it is the practice to empty it each day. This is done through four chutes, two being on either side of the doubly inclined bottom of the pocket, so that the ashes may be fed to cars on either of two tracks. An important feature of this plant is that it occupies such a small amount of valuable space. In the ashes handling part of the outfit the machinery is entirely out of the way, and the steel storage pocket is so constructed as not to reduce the surface desirable for tracks, and the advantage of this space economy will commend itself most forcibly to those in charge of busy stations where the trestle system, for instance, is employed for coaling.

1898), and it is sufficient to say at this time that by their use the long pitch chains employed are driven smoothly and at uniform speed. The engines used were supplied by the Otto Gas Engine works of Philadelphia, and the entire plant was designed and installed by the Link-Belt Engineering Company of Philadelphia and New York.

At the south mill of the Lackawanna Iron & Steel Company at Scranton, Pa., a record was recently made in rail rolling. In one hour 45 ingots of four rails, weighing 80 pounds to the yard, were rolled. This is 180 rails in an hour, weighing 68.3 tons, or at the rate of 800 tons per turn of 12 hours.

Marconi's system of wireless telegraphy, which has been attracting much attention in Europe, scored a distinct success this week in some tests that were made across the English Channel. Messages were passed with the greatest ease between a station at Wimereux, near

Boulogne, on the coast of France and the South Foreland Light House on the English coast, a distance of 32 miles. The *London Times* received the first wireless press message sent across the Channel, the Morse code being used. The messages, it is said, were received and read with a distinctness equal to those transmitted by cable. The experiments are being watched with interest by the European Governments, and the result may, it is claimed, work a complete revolution in the art of telegraphy.

The Colorado Freight Suit.

The case of the Colorado Fuel & Iron Company against the Southern Pacific Railway Company, and another case, naming the Southern Pacific as complainant, have been taken from the United States Circuit Court at Denver and filed with the clerk of the United States Circuit Court of Appeals of the Eighth Circuit, sitting at St. Paul next month. The cases were appealed from Judge Hallett, at Denver, on the decision of His Honor that his court lacked jurisdiction.

The fight was over the report of Special Master in Chancery Sanford C. Hinsdale, who heard a great mass of testimony of both sides and then filed his decision with the court.

Last fall the fuel and iron company brought suit against the Southern Pacific, the Denver & Rio Grande,

Master Hinsdale found that the rates asked for by the fuel and iron company—i. e., 45 cents per 100 pounds on steel rails and fastenings, and 37½ cents per 100 pounds on bar iron, cast iron water pipe, pig iron, billets, rivets, spikes and other steel and iron articles, from Pueblo to San Francisco, Sacramento, San Jose, Stockton and Marysville, Cal., in carload lots—are reasonable and just to the railways, and were so during the period from October, 1892, to October 28, 1898.

The Master found, in addition, that the refusal of the defendants, especially the Southern Pacific Company, to

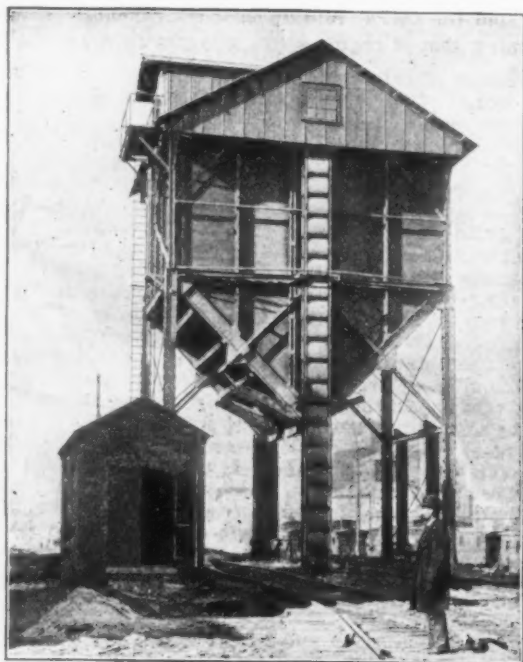


Fig. 10.—View of Ashes Pocket.

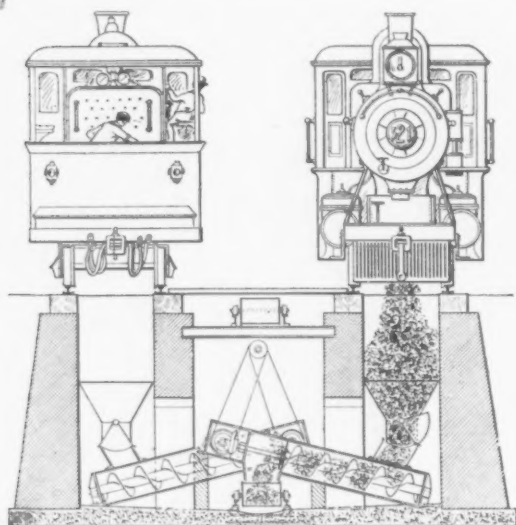


Fig. 9.—Transverse Section Ashes Carrier.

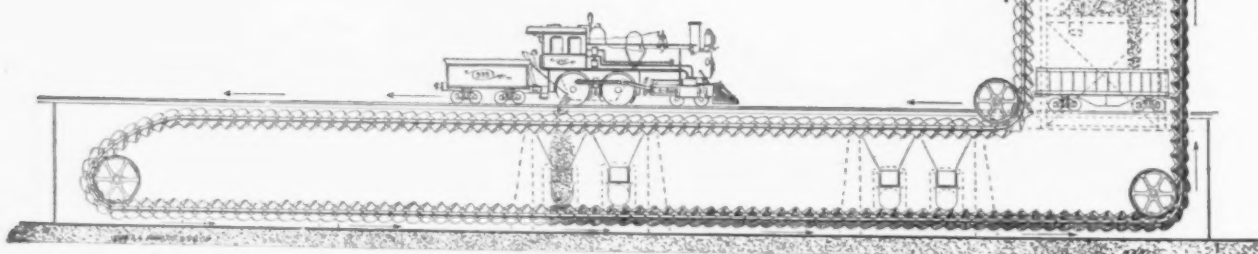


Fig. 11.—Longitudinal Section Ashes Carrier.

NEW COALING STATION OF THE ERIE RAILROAD.

the Union Pacific, Denver & Gulf, the Rio Grande Western and the Union Pacific, lines running between Pueblo and the Pacific Coast, asking that an injunction be granted restraining the defendants from advancing the rates on iron and steel, as they had threatened to do. These rates had been lowered by command of the Interstate Commerce Commission, when it was shown that the lines were hauling iron and steel from Chicago to San Francisco cheaper than from Pueblo to San Francisco, although Pueblo was 1000 miles nearer. The Colorado Fuel & Iron Company also demanded heavy damages for loss of business accruing from the excessive rates.

Judge Hallett granted the injunction and the rates were not advanced. Before a final hearing was held it was agreed to submit the testimony of both parties to a special master, and on his report the plaintiff and defendants would come before the court.

introduce such rates in October, 1892, and maintain them, and in maintaining a rate of \$1.60 per 100 pounds, was unjust and unreasonable and in violation of the act to regulate commerce. By reason of such violation he found the fuel and iron company had sustained damages in the sum of \$35,300, and that judgment for the same should go against the Southern Pacific Company, as it was proven that line, because of their monopoly of the entrance into San Francisco, were in the position to dictate and did dictate what tariffs should prevail over lines occupying the position of feeders.

It is on the Master's report that the fight will be made before the Appellate Court.

After being idle for several years, the Buttsville iron ore mines at Flemington, N. J., will resume operations in a few days.

Influence of Arsenic on the Mechanical Properties of Steel.*

BY M. J. MARCHAL.

M. J. Marchal has reported the results of experiments with basic open hearth steel which he submitted to a series of tensile, bending, welding and drop tests. In order to satisfy himself that the smith who was to undertake the welding of the steel would do it carefully, he gave him six pieces to weld, all cut from the same round bar. Submitted to tensile tests, the breaking load of the welded bars varied between 59,440 and 60,000 pounds per square inch. In no case did the rupture occur in the weld. A test piece cut from the same bar but without weld broke at 59,440 pounds per square inch. The elongation of the welded pieces varied between 17 and 18.5 per cent. The elongation of the natural bar was 26.5 per cent.

The arsenical steel was obtained in the following manner: At the time of the cast from the open hearth furnace two small molds of a capacity of about 14 pounds each were filled with steel from the same heat. The desired amount of arsenic was introduced into one of the molds during the casting operation by means of a glass tube, while the other mold was filled with the ordinary steel. The loss of arsenic through volatilization was very small. On account of the affinity of iron and arsenic for each other at this high temperature practically the total amount of arsenic was absorbed and was homogeneously distributed through the steel. This fact was established by carefully made analyses taken at the top, in the center and at the bottom of the arsenical steel. No appreciable difference was noticed in the amounts of arsenic contained in the different parts, furthermore, some of the small steel ingots with a high percentage of arsenic were sawed in two longitudinally and the cuts were submitted to a careful inspection under the microscope to detect the possible presence of any free arsenic in the steel. The metal in each instance proved perfectly homogeneous, without a trace of free arsenic.

Both the ordinary and the arsenical steels were submitted to the same series of tests. The ingots were rolled into round bars of about 3/4 inch diameter, from which were cut the pieces to be used in the tensile, bending and all other tests. On account of the presence of arsenic, no volumetric nor calorimetric methods were used in the analyses. The author carefully describes the methods followed in the determination of each of the elements, carbon, phosphorus, silicon, manganese, sulphur and arsenic.

In regard to arsenic he corroborated results obtained previously by Ad. Carnot and Goutal, and reported upon by them to the Académie des Sciences. They had noticed that, contrary to other metalloids, arsenic does not seem to combine with iron, but seems rather to be dissolved in the pig iron and steel. Manganese, nickel, copper and titanium seem to act in the same manner as arsenic. If steel is treated with a weak solution of hydrochloric acid, excluded from the contact of the air, the arsenic contained in the metal remains insoluble. Scarcely noticeable traces of it can be detected in the gaseous products or in the solution.

The results of the mechanical tests to which the samples were submitted are interesting. They are contained in the accompanying table.

The cold bending tests were made by first bending the test pieces to an angle of 90 degrees on an anvil. After this the two branches of the bent piece were brought in contact and flattened under a drop hammer.

In the drop test a weight of 40 pounds fell freely from a height of about 9 feet on the center of the test piece, which was resting on the knife edges of two steel supports 6 1/2 inches apart.

For the hardening tests the test pieces were heated to a cherry red heat and quenched in water at 68 degrees F. The test bars under "original" in the table had previously been annealed.

From the table, as well as from other observations made, the following conclusions are drawn:

The welding of the steel is considerably influenced as soon as the arsenic reaches 0.2 per cent. When the steel contains more than 0.2 per cent. it is necessary to use a flux compound of borax, sal ammoniac, etc. Under these conditions welding could be done up to 1.2 per cent. of arsenic. The steel with 2.75 per cent. of arsenic did not weld at all; it behaved like pig iron.

The tensile strength increases with the arsenic contents, while the elongation decreases correspondingly.

Beyond a certain limit of arsenic, steel breaks like pig iron under a relatively light charge. In this case the texture of the steel looked very much like the texture of pig iron, giving rise to the belief that arsenic lib-

erates part of the combined carbon in the shape of graphite. It was also noticed that the brittleness of the steel increased with the amount of arsenic contained therein, without, however, increasing as fast as found

Mechanical tests on round bars nearly 3/4 inch diameter.														
Kind of steel.	Analysis in percentage.						Tensile.		Cold bending.		Drop tests.			
	C	P	Mn	S	Si	As	Original.		Welded.		Original bent completely.	Hardened bent completely.	Original bent at 90°.	Hardened bent at 90°.
							R per square inch.	E Per cent.	R per square inch.	E Per cent.				
Normal.	0.130	0.048	0.445	0.010	0.018	...	54,200	30.2	54,200	19.6	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Arsenical.	0.130	0.045	0.450	0.008	0.015	0.020	53,550	29	53,550	16.7	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Normal.	0.133	0.035	0.545	0.008	0.017	...	57,200	27.5	58,160	18.8	No crack.	No crack.	At 2d blow no crack.	At 3d blow no crack.
Arsenical.	0.130	0.037	0.540	0.009	0.017	0.100	59,600	26.6	59,300	16.6	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Normal.	0.146	0.032	0.455	0.010	0.020	0.200	56,300	29	56,150	19.7	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Arsenical.	0.140	0.040	0.508	0.010	0.019	0.400	59,300	28.5	59,600	16.7	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Normal.	0.150	0.034	0.537	0.004	0.022	...	58,600	27	60,040	16.7	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Arsenical.	0.150	0.042	0.570	0.006	0.018	0.400	61,430	25.6	63,300	16.5	No crack.	Superficial crack.	At 2d blow no crack.	At 2d blow no crack.
Normal.	0.125	0.031	0.465	0.005	0.016	...	54,900	28	56,150	18.1	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Arsenical.	0.130	0.021	0.498	0.007	0.016	1.200	64,850	21.1	45,300	8.6	One crack.	Breaks at angle of 110°.	At 2d blow no crack.	At 4th blow no crack.
Normal.	0.120	0.021	0.455	0.004	0.009	...	52,600	31	54,200	18	No crack.	No crack.	At 2d blow no crack.	At 2d blow no crack.
Arsenical.	0.115	0.016	0.400	0.006	0.005	2.750	51,900	(1)	Does not weld.	...	Breaks completely.	Breaks completely.	At 1st blow breaks completely.	At 2d blow no crack.

(1) Result checked by Messrs. Carnot and Frésenius.

* Extract from the Bulletin de la Société D'Encouragement by J. B. Nau.

by other experimenters. The malleability of the metal at a red heat is not influenced by the presence of arsenic.

The author concludes, further, that steel otherwise pure will not suffer by the presence of such amounts of arsenic as are occasionally found in the metal, while the defects given to the metal by other impurities may be increased by the presence of arsenic.

The Use of Magnetic Instruments for Discovering Magnetic Ore Deposits.

BY PROF. G. NORDENSTRÖM, STOCKHOLM.*

Nowhere have the magnetic instruments been employed in prospecting for iron ore as long and so extensively as in Sweden, and in no other country have these instruments reached such a perfection. Sometimes this has been accounted for by the assumption that most of the Swedish iron ores are more or less attracted by the magnet, while the ores in other countries are less magnetic. But while it is true that the magnetic needle attracts not only the magnetic but also to a certain degree the red hematites, which here are more or less mixed with the magnetic iron ores, it is equally true that other countries, principally the United States, Canada, Mexico, Russia, Asia Minor and the British Indies, also have rich magnetic ore deposits. Thus the reason for the great interest taken in Sweden in making use of the magnetic surveying instruments is to be looked for elsewhere, and can easily be accounted for by considering how this interest for discovering new ore deposits has for centuries back been stimulated by the Government in granting special privileges and rewards for such discoveries.

This class of instruments has been in use here nearly 200 years, or perhaps longer. At first the declination compass was employed, but about 1770 the inclination needle (or the so called "mine compass") came into use. This consists of a round brass box, in which a magnetic needle is so suspended that it can move freely in the horizontal plane and about 70 degrees from the horizon in the vertical plane. Besides, it is adjusted and compensated for the vertical component of the terrestrial magnetism, so that it places itself in a horizontal position when in a non-magnetic field. By means of this simple instrument (greatly superior to the miners' compass invented 100 years later in the United States) all the principal iron ores, as well as the deposits of copper, zinc, cobalt and nickel ores of Sweden, have been discovered, the latter owing to the fact that the ores contain more or less magnetite or pyrrhotite. Even at present it is used in prospecting for and in the preliminary location of a magnetic ore body. But for the further and more accurate work two other instruments, of greater precision and of great practical value in locating and determining the value of such ore deposits, have come in general use during the last three decades, namely Thalén's magnetometer and Tiber's inclinometer.

The Thalén Magnetometer.

This instrument was designed by R. Thalén, professor at the University of Upsala. It is a simplified Lamont theodolite and consists of a declination compass, A, with a diameter of about 3¼ inches, graduated in whole and

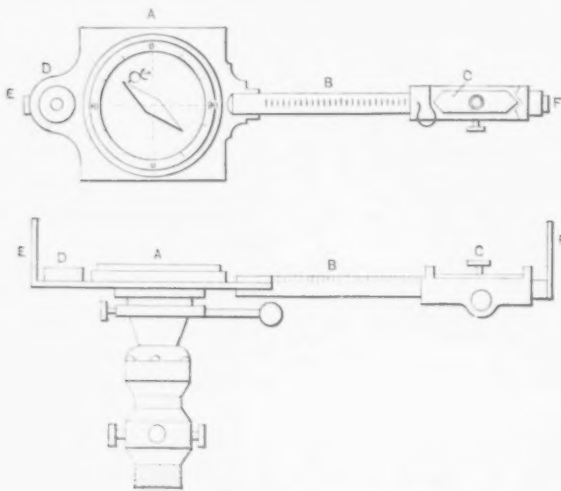


Fig. 1.—The Thalén Magnetometer.

half degrees. At right angles to the diameter through the zero point an arm, B, is attached, about 8 inches long and graduated in millimeters. In the direction of this arm and at a fixed (although arbitrary) distance from the center of the needle a deviation magnet, C, is now placed. The instrument turns around a vertical axle, the center line of which passes through the center of the magnetic needle. It is provided with adjustment screws, spirit level, D, diopters (sights E and F), and is mounted on a tripod.

The magnetometer has been in use over 25 years and is now principally employed measuring the horizontal intensity, and in executing this two different methods are

used—namely, the so-called tangent method and the sine method. In using the former method the deviation magnet is removed, the instrument leveled and so adjusted that the compass needle points to zero, after which the magnet is put in its fixed place on the arm and the deviation angle, α , noted. When choosing the sine method the magnet is first placed in position, the needle put at zero, the magnet removed and the deviation angle read. This method gives more accurate results than the former, and is always used when making theoretical calculations or for obtaining very exact results; but in practice the tangent method is generally preferred, it being more convenient and simple, besides always applicable, which is not the case with the sine method (namely, in certain points in the ore field north of the ore body, where the

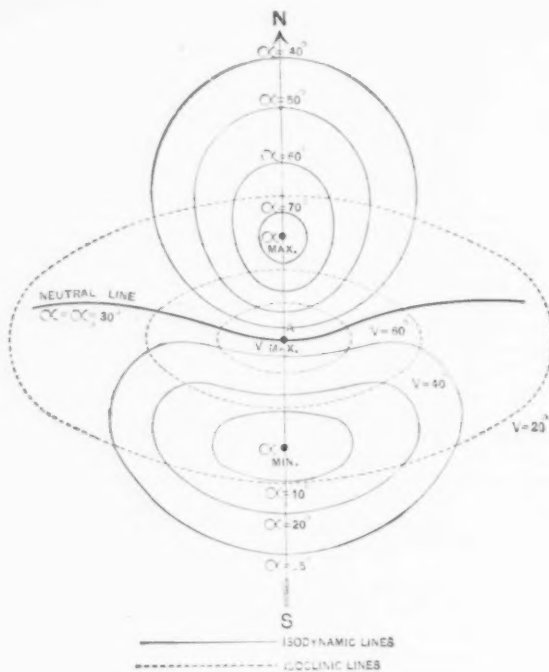


Fig. 2.—A Magnetic Survey.

free compass needle assumes an indifferent equilibrium, the so-called "points of indifference").

If, in surveying a territory with magnetic ore bodies, R denotes the resultant of the forces of the terrestrial magnetism and other magnetic attractions, the following equations are easily obtained for the two methods:

$$R \tan \alpha = K_1.$$

$$R \sin \alpha = K_2.$$

In which α is the angle of deviation and K_1 and K_2 are constants, as long as the position and strength of the deviating magnet are unchanged.

When a magnetic ore field is to be surveyed with the magnetometer the instrument is first adjusted in a place where no ore attraction (thus only the terrestrial magnetism) exists. The deviation here obtained is called α_0 . The ore field is now divided up in squares of about 30 feet sides and with the aid of the tangent method the angle of deviation, α , is noted at each corner of every square. These values of α are marked on the map and the points of equal values are united. By this means two series of isodynamic lines are obtained, which in a more or less regular manner surround each their own center. (See Fig. 2.) Of these one is situated north of the ore body, where α is the greatest (α_{\max}), and the other is either directly above or somewhat south of the same, where α has its minimum value (α_{\min}). Between these two systems of curves there is an open curved line, the deviation angle of which is the same as that obtained on neutral ground (α_0), and which is called the neutral line, while α_0 is called the neutral angle. The line combining the maximum and minimum points designates the direction of the magnetic meridian of the ore, and the center of the ore body is situated directly under the section point of the magnetic meridian and the neutral line as often as $\sin \alpha_0 < \sin \alpha_{\min}$. In this case the ore outcrop is covered with more or less deep layers of sand, gravel or other recent deposits. If on the other hand $\sin \alpha_0 \equiv \sin \alpha_{\min}$, the center of the ore body is situated either under the point represented by α_{\min} or somewhere on the magnetic meridian between this point and the said point of intersection; and in this case the ore either crops out or is covered by late deposits, the depth of which is smaller the nearer the ore center is to the minimum point. It must also be remembered that for obtaining correct results it is of importance to know the levels of the ore field in question.

* Abstract from Jernkontorets Annaler, 1898, by E. A. Sjostedt.

The Tiberg Inclinometer.

The Tiberg inclinometer, or inclination scale, as it is also called, has been in use since 1880, when it was constructed by E. Tiberg. It consists of a compass box of 3¼ inches diameter, graduated at its circumference from 0 to 90 degrees, and with the magnetic needle so fixed on the axle that it can only move in the plane of the graduated scale, the axle of support being somewhat above the center of gravity of the needle when the instrument is placed in its vertical position. The needle is compensated for the vertical component of the terrestrial magnetism by means of a piece of wax or an aluminum counterbalance. Since a few years this instrument has been combined with Thalén's magnetometer for the sake of convenience and practical utility.

Combined Instrument.

This instrument is shown in Figs. 3 and 4. Fig. 3 shows the instrument provided with the Tiberg compass and in

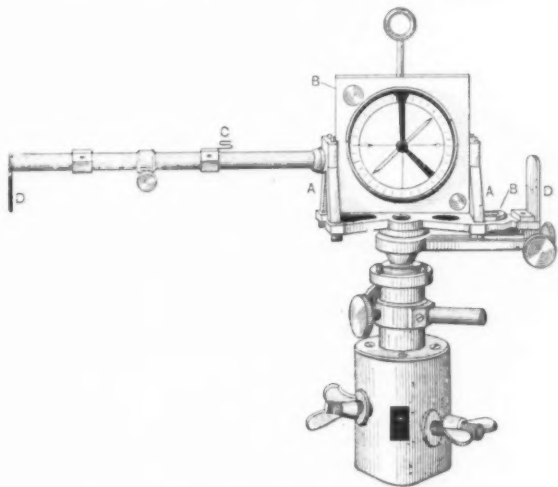


Fig. 3.—Instrument with the Tiberg Compass.

Fig. 4 with a Thalén compass. In order to make such an interchange possible the compasses are provided with taps fitted to bearings, at *a*. The center line of the taps passes through the zero point in the Tiberg compass, but in the Thalén instrument through the ninetieth degree. This instrument, also, is provided with a spirit level, *b*, a cross arm, *c*, and sights, *d*. The deviation magnet is placed at *e*, when using Thalén's method, the procedure of which has already been indicated,* and when about to use the Tiberg

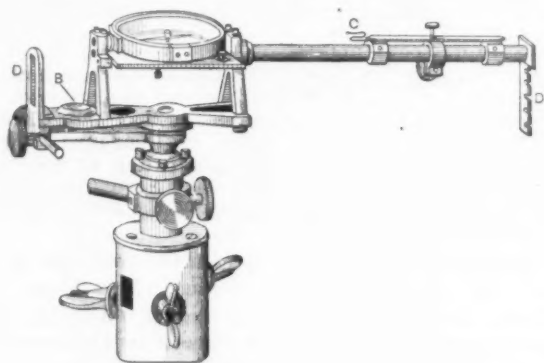


Fig. 4.—Instrument with the Thalén Compass.

method the instrument is first adjusted on non-magnetic ground and the ore field divided up in squares, as previously described. Then the following observations are made at each corner of every square: The compass is placed horizontally and is turned in the horizontal plane until its center line through the taps is at right angles to the direction of the needle (i.e., so that the needle points to 90 degrees). Thereupon the compass is turned around the taps to a vertical position, when the needle is acted on only by the vertical component of the magnetic ore body, resulting in a greater or less inclination of the needle. If *P* represents the magnetic force of the ore and *V* the angle of inclination, then $P = K \tan V$. By noting the value of *V* on the field map and combining the points of equal *V* value, a series of isoclinic lines are obtained, which are grouped more or less regularly around a certain center, the *V* value of which is greater than all other. (See Fig. 3.) Directly under this center (where $V = V_{\max}$) the principal body of the ore is always to be found.

* For full description of this, as well as of the inclinometer, see "L'Industrie Minière de la Suède, in 1897," by G. Nordenström.

Underground Surveys.

The magnetometer and the inclinometer are also used below ground, on different levels and in drifts, for locating and following up new ore bodies and in this work, as a rule, the sine method is adopted. If *H* is the terrestrial magnetism, *F* the horizontal component of the ore magnetism and *R* the resultant of both, then the resultants *R*₁, *R*₁₁, *R*₁₁₁, &c., for each point of observation are obtained according to the formula $R = H \frac{\sin \alpha}{\sin \gamma}$. If we then give

H (which may be considered a constant) an arbitrary value, and observe the angles which *R*₁, *R*₁₁, *R*₁₁₁, &c., form with *AB* (Fig. 5), we obtain the lengths and directions of *R*₁, *R*₁₁, *R*₁₁₁, &c. And the length and direction of the component *F* can then be found by graphic construction. The center of the magnetic ore body is indicated by the direction of *F*₁, *F*₁₁, *F*₁₁₁, &c., which all converge more or less toward it.

In all the Swedish mining districts the Thalén and Tiberg magnetic instruments described are now employed, with the best of results, above ground as well as down in the mines, and there is hardly an iron mine of any consequence in this country where these instruments are not used, in one way or other, and where magnetic maps (based on any of the described methods) are not kept. As a consequence all prospecting work is being done easier and cheaper, is more readily and more exactly directed than what would be the case without a magnetic survey. The result is a great saving in time and money, since trial pits and trial drifts are reduced to a minimum. In prospecting and for the valuation of even a small ore body a magnetic survey of this kind is now carried out before any actual mining or development work is attempted.

Doubts have been expressed as to the accuracy of the magnetic survey methods in Southern latitudes, but that

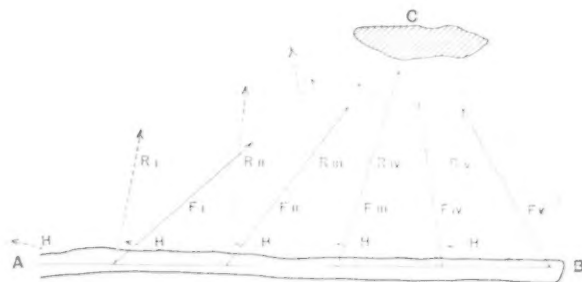


Fig. 5.—Underground Magnetic Surveying.

they are as reliable there as in the North the author has had occasion to verify at different times, and especially in 1895, when on a visit to some mines in the south of Spain, where he had the opportunity of making magnetic surveys of the Marbella and Estepona mines, province of Malaga, and of the Pedros mine in Sevilla, and which fully proved the exactness of the methods. In 1896 K. Johanson, a Swedish mining engineer, made complete magnetic survey and maps of the mines of the Iberian Iron Ore Company, near Pedros, the first complete work of this kind done at any European mining district, with the possible exception of Finland. From them a clear conception has been obtained of the district in question, as valuable here at 38 degrees latitude as they have proved time and again in the most northerly districts of Sweden in the latitudes of 60 and 70 degrees.

The advantages and usefulness of these magnetic surveys are therefore undisputable, and we cannot but express our surprise at the slowness in accepting this practice in other countries, rich in magnetic ore bodies, and which can only be accounted for from a lack of knowledge or realization of its great practical value to the mine owner as well as to the engineer in charge.

The directors of the Pittsburgh Plate Glass Company of Pittsburgh on Friday, April 7, declared a dividend of 1 per cent., the same as that paid in February, when the initial distribution to stockholders was made. The dividend, which amounts to \$98,500, is payable May 1. It has also been decided by the directors to anticipate payment May 1 of \$500,000 of the \$2,500,000 6 per cent. debenture bonds due in 1902, and, furthermore, that a similar amount of this issue be lifted August 1. These payments will reduce the fixed charges of the company \$60,000, or the equivalent of three-fifths of 1 per cent. annually on the stock. To satisfy this \$1,000,000 payment and distribute 4 per cent. to stockholders requires an amount equal to 15 per cent. on the capital. The 12 per cent. dividend on the preferred requires but \$18,000 annually.

The Foundrymen's Association.

The eighty-seventh meeting of the Foundrymen's Association was held at the Manufacturers' Club, in Philadelphia, on Wednesday, April 5, the president, P. D. Wanner, occupying the chair.

Mr. Wanner opened the meeting with a short address on

"Cast Iron Pipe and Consolidation."

May 11, 1892, I read a paper on cast iron pipe at a meeting of the Board of Trade of Reading, Pa., which was published and freely commented upon, in which I said, among other things, the following:

Cast iron pipe commenced to be used for water works about the beginning of the present century. But 16 of these works were constructed in this country prior to the year 1800, and 87 up to the year 1850. The trade developed slowly until after 1850, when the large increase of water and of gas works made the demand for pipe proportionately large. The panic of 1857, followed by the Civil War, interrupted it materially, but after the war it became flourishing, and to such an extent that even the panic of the seventies did not seem to affect it until the year 1878. After that, owing probably to an overbuilding of water and gas works and the high price of pig iron, the trade remained quiet until the summer of 1881, when it became very active, and remained large and profitable until the end of 1887. These were seven years of unprecedented prosperity for the pipe manufacturers, but with them disappeared the large profits of the business—and yet from that time to the present the demand for pipe was large, and the number of water and gas works increased in the aggregate to 2200 of water and 1200 of gas, having a mileage of pipe of over 50,000, a distance twice around the world. The trade was also increased by a large demand from railroads, cities and towns for drainage, culvert and sewer purposes, but owing to the large number of new pipe foundries constructed throughout the country of late, and the increased capacity of the older ones, the demand fell short of the supply. In other words, we have had overproduction. All the new foundries built since the boom of the eighties could have been spared and the money saved to the investors. Its present condition is full of anxiety, and has brought about some very desperate movements, particularly on the part of Southern establishments. View the situation as we may, it clearly indicates that this once prosperous and profitable trade will become uncertain and of doubtful tenure, and that location, equipment and management will be essential elements tributary to the success of pipe foundries hereafter. I believe that the several sections of the country will have their respective works to which their trade will be necessarily confined, and even in that case such territory will probably have to abandon some of its present works.

I said this all but seven years ago. Few, if any, predicted the future of the trade better, and none did more to uphold prices during these years of depression than I, and having dismantled two pipe foundries (one of which was among the very first in the country), I should at least be permitted to run one foundry either in or outside of the consolidation. I believe, frankly, that the only hope for success in this trade for the future will lie in a combination that shall control the product and business of them all, either directly or indirectly. I have been in favor of such consolidation or control from the time I became interested in it. Its product is bulky and could naturally be limited to the several sections of the country or divisions of territory. I therefore maintained that it would be better that several sections should work together, or even in case of a few concerns here and there, than that they should all compete apart. This and all governments were created and are upheld by necessity. It will be so with both capital and labor and all trade or manufacturing interests in the future. It has been truly said that business is war, and to make it a success warlike methods will have to be restored to, and success will be on the side of those who have the largest guns or aggregation of capital; in other words, a combination of the greater part of the trade will be able to dictate prices and a line of behavior to those outside, or crush them. It is no longer the survival of the fittest, but of that which can hold out best and longest.

The panic of the seventies and consequent depression suggested a combination to the pipe trade, and accordingly a notice was issued to all the pipe men of the country to meet on December 17, 1879, at the Continental Hotel, Philadelphia, Pa., at which the following, according to the minutes of the meeting, was agreed upon after a two days' session by all except the Warren Foundry & Machine Company of Phillipsburg, N. J.; Matthew Addy of the Cincinnati & Newport Pipe Company, Cincinnati, Ohio, acting as chairman, and Dr. J. D. White

of the Camden Iron Works, Camden, N. J., acting as secretary—viz.:

"We, the undersigned cast iron pipe manufacturers of the United States, hereby agree to form an association for mutual benefit and protection, and more especially for the objects mentioned below:

"1. To devise some method to secure more remunerative prices.

"2. To divide the work or assets realized for the letting of the work on a basis equitable to all.

"3. To prepare uniform specifications under which we shall all pledge ourselves to bid at public lettings.

"4. To prevent the expansion of present shops or the building of new ones."

The company above referred to not attending nor agreeing to join, the object of the meeting failed.

With the splendid revival of the trade during the eighties no further effort was made to combine outside of what was done by the Western pipe men, and later by the Southern. The want of a sufficient demand and consequent decline in prices prompted a meeting of the Eastern pipe men, for which a notice was issued to meet at the Astor House, New York, December 20, 1892, which was attended by representatives from the Warren Foundry & Machine Company of Phillipsburg, N. J.; McNeal Pipe & Foundry Company of Burlington, N. J.; Buffalo Cast Iron Pipe Company of Buffalo, N. Y.; Utica Pipe & Foundry Company of Utica, N. Y.; Reading Foundry Company, Limited, of Reading, Pa.; R. D. Wood & Co. of Philadelphia, Pa.; Jackson & Woodin Mfg. Company of Berwick, Pa., and also, by letter, the National Pipe & Foundry Company of Scottsdale, Pa., and the Emaus Pipe Foundry Company of Emaus, Pa.

The meeting was organized by the election of Wm. Runkle of the Warren Foundry & Machine Company as president, A. H. McNeal of the McNeal Pipe & Foundry Company as vice-president, Geo. B. Hayes of the Buffalo Pipe & Foundry Company as treasurer, and P. D. Wanner of the Reading Foundry Company, Limited, as secretary. A constitution and by-laws were adopted. The association was named the Eastern Cast Iron Pipe Founders' Association, the object being "the advancement of the interests of the cast iron pipe trade, the promotion of good will and harmony among its members, the encouragement of uniform customs and concerted action, and the collection of all information on matters of importance to the business," also the proper division of territory for the trade at large.

This association failed likewise for want of cohesiveness. Thus it appears that both of the efforts to combine, above referred to, failed because of a few concerns either opposing or failing to join.

In my opinion it would have been of very great service to them had they been united and worked together. There would have been fewer losses, fewer foundries, less trouble and worryment, and more money for all of them.

In all financial, industrial and commercial affairs the order of the day is in the direction of co-operation and combinations in spite of all attempted legal restrictions, political denunciations or other useless impediments. Their object can be defeated only by their own indiscretion, such as unwise or over capitalization, or a demand for unreasonable profits. The whole movement is a result of the evolution and progress of the advanced state of business civilization.

Afterward, in commenting upon the condition of the cast iron pipe trade at the present, Mr. Wanner instanced the case of a recent letting at which the company representing the newly effected consolidation of foundries and an outside foundry were bidders, and the contract was awarded to the outside foundry at a price, which was \$2.22 lower than the other bids. After studying the condition of affairs thoroughly, Mr. Wanner was of the opinion that where an industry had in their producing capacity outgrown the demand for the product the only way to save the business was to form a combination.

A discussion on the question "Are foundrymen getting for castings prices consistent with the advanced prices of raw material? If not, why not?" brought out the fact that foundrymen in nearby towns were getting much better prices than the foundrymen of Philadelphia. The situation appeared to be somewhat improved, however, advanced prices being asked by a few foundrymen in the district.

The Moline Plow Company, Moline, Ill., are to build a new foundry. The building will be 150 x 175 feet 4 inches, three stories high, fire proof construction throughout.

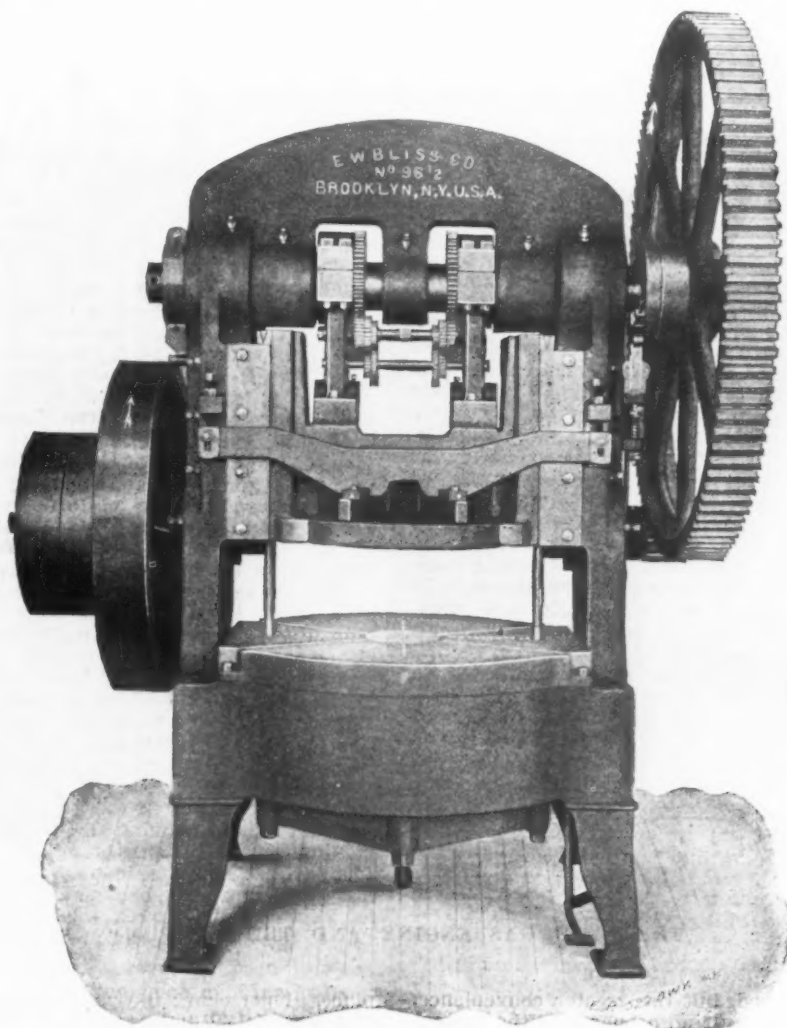
Bliss Presses for Making Armature Disks.

The requirements of armature work for electric motors and dynamos have led to the construction of presses which differ in essential points from those used for other styles of sheet metal work. The E. W. Bliss Company of 11 Adams street, Brooklyn, have designed and built very recently two machines for the express purpose of making armature disks and armature sections, but which may be adapted for other large and accurate blanking operations. These two presses embody a number of improvements over presses heretofore manufactured by this company for similar work. One press is intended for cutting simultaneously the inside and outside of plain armature disks, with or without the key notches. For this class of work the press will take disks up to 21½ inches in diameter, but can be made to take disks up to 24 inches in diameter. The rings or disks as they come from the press are ready for notching by means of an automatic press built for this purpose by the com-

pany of which \$15,000 has been paid in, for the manufacture of malleable iron castings. The incorporators are T. D. Buhl, L. B. Ball and Alex. McPherson, all of Detroit.

Power Plant for Pressed Steel Car Company.

The boiler house for the new plant of the Pressed Steel Car Company, at McKee's Rocks, Pa., will be designed for 3000 horse-power water tube boilers, which will be equipped with Roney stokers. The coal storage, which is above the boilers, will be sufficient to operate the plant for five days of 24 hours each. The coal plant will be installed by Heyl & Patterson, engineers and contractors, of Pittsburgh. The coal will be received on railroad siding, passing the end of boiler house. Under the railroad track a receiving hopper and crusher are to be placed, so that either mine run or slack coal may be used. The coal will then be lifted and deposited in storage hoppers. From these hoppers, by systems of suit-



BLISS PRESS FOR MAKING ARMATURE DISKS.

pany. The press may also be used for simultaneously punching the outside notches and center hole on disks up to about 9 inches in diameter. The engraving illustrates a type of press for somewhat larger work and will take in disks up to 36 inches in diameter. The weight of this press as shown is about 25,000 pounds. The adjustment of the slide and other details will be understood by those acquainted with press construction. An improved knockout in the press bed and in the main slide does away with the heavy springs generally used to free the dies and punches of the blanks cut. With this new device the great strain arising from the heavy springs is not put upon the frame of the press, but it becomes a mechanical and positive movement, using no unnecessary power, and that which is used is at a time when there is plenty to spare—while the press slide is returning on its upward stroke. This feature enables the user to construct somewhat cheaper and longer lived dies. This latter type of press is also largely used for cutting the sections of large generators, &c.

The Sprocket Chain Mfg. Company of Detroit, Mich., have been incorporated, with a capital stock of \$75,000,

able pipes, it is passed to the stoker magazines. The ashes which will be accumulated in the ash pit under the stoker will be cleaned out into a small car in a tunnel under the boiler house floor. This car will transport the ashes to the elevator which is used for handling the coal, which will also be used for lifting the ashes and depositing them in an ash hopper, also within the lines of the building, from which hopper the ashes will be drawn off into railway cars on the same track on which the coal is received. The entire scheme of handling coal was designed and is covered by the contract of Heyl & Patterson, including the motive power, which will be electric motors. The Roney stokers will be furnished by Westinghouse, Church, Kerr & Co.

Engineers from Pittsburgh are staking out the ground for the new tube works to be erected at Beaver Falls, Pa. The contract for the foundations has been placed with John Campbell of Beaver Falls. This plant will be a large one for the manufacture of boiler tubes, and the parties interested in it are principally officials of the Standard Oil Company.

The Nash Gas Engine and Triplex Pump.

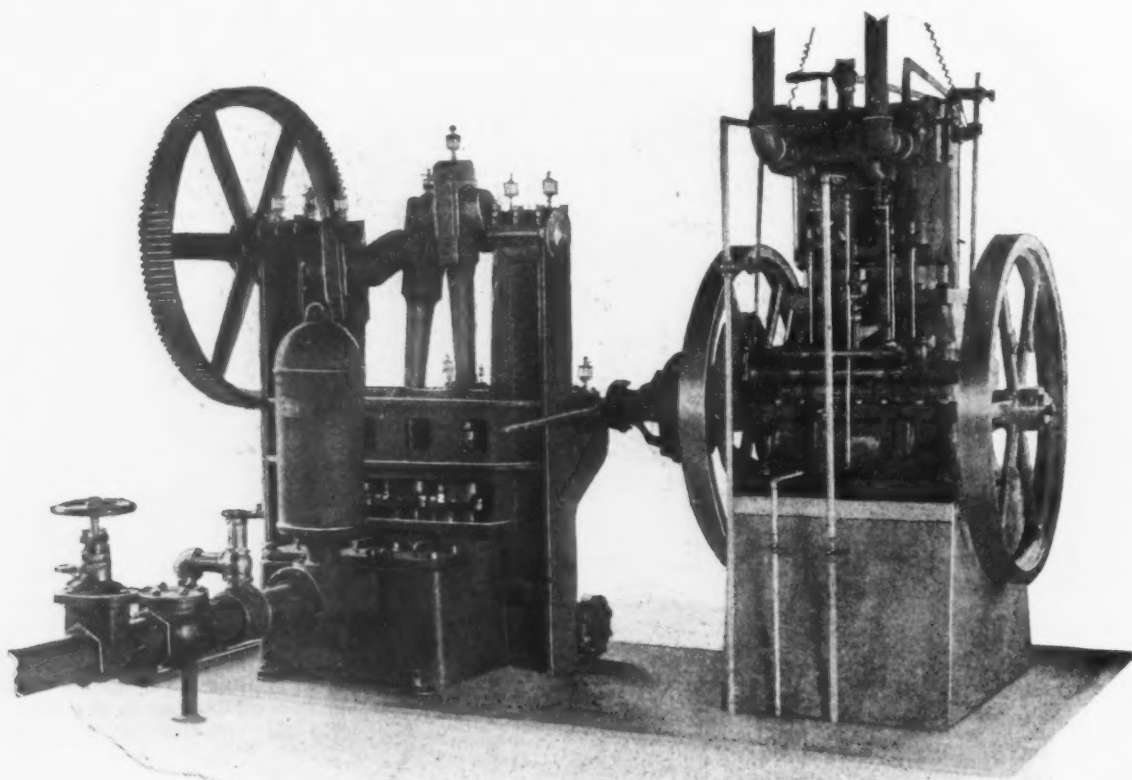
The cut herewith shows one of a pair of pumping outfits, forming a complete pumping plant, in duplicate, for the Toms River Water Works, Toms River, N. J. Each unit consists of a 20 horse-power, vertical double cylinder Nash gas engine, operated by liquid gasoline and direct connected by means of a friction clutch to an 8 x 10 Gould's triplex power pump of 200 gallons per minute capacity at 280 revolutions of the engine and about 31 revolutions of the pump under a normal pressure for domestic service of 60 to 70 pounds. Provision is made, however, for adjusting the engine governor while running so as to vary the speed from 200 to 325 revolutions, and the pumping capacity from 175 to 280 gallons per minute. The higher speeds are intended only for fire service; when the 8-inch connection to storage tank is closed both pumps are operated, and a direct pressure of 100 pounds is obtained at any one of the 36 hydrants distributed throughout the pipe system.

For the Toms River service both direct acting steam pumps and power pumps operated by gasoline engines

increase the capital stock of the exposition from \$1,000,000 to \$2,500,000, to consist of 25,000 shares of the par value of \$100.

Progress of Naval Vessels Building.

Chief Naval Constructor Hichborn has prepared a statement showing the progress in the construction of new vessels of war for the United States Navy, which gives the following details: The battle ships "Kearsarge" and "Kentucky," at Newport News, Va., are advanced 87 per cent. toward completion; the "Illinois," at the same place, 64 per cent.; the "Alabama," at Cramps' yard, Philadelphia, 80 per cent.; the "Wisconsin," at the Union Iron Works, San Francisco, 65 per cent. The sheathed cruiser "Albany," building at Armstrong's, in England, is set down at 80 per cent. None of the four monitors to be built has been laid down yet. The training ship "Chesapeake" is 73 per cent. advanced, and the submarine boat "Plunger" 85 per cent. Of the torpedo boats, the "Dahlgren," at Bath, Maine, is set down as 95 per cent.; the "Craven," at the same



THE NASH GAS ENGINE AND TRIPLEX PUMP

were carefully considered, but the greater convenience, ease of handling, simplicity and economy of the gas engine plant, also the lessened cost of installation compared with steam pumps, requiring pump house with boiler house and smoke stack, instead of the plain brick structure that answered for the gasoline plant, and, finally, the quick availability, which enables the duplicate gasoline plant to be started within two minutes when wanted for fire service, affording full protection with a small storage tank, were all such strong points in favor of the gas engine system.

The complete water works system for Toms River, a town of about 1200 inhabitants, cost, complete, about \$19,000, and includes the duplicate pumping plant above described, with brick station for same, three 6-inch tube wells, some $3\frac{1}{2}$ miles of 8, 6 and 4 inch water pipe, 36 hydrants and a 50,000 gallon steel storage tank, 20 feet diameter by 25 feet high, mounted on a steel skeleton structure 80 feet high, built on an elevation about 30 feet above pump house. The cost of pumping with such a plant, using gasoline at 10 cents per gallon, is about 7 cents per 10,000 gallons of water pumped to a height of 100 feet. The main points of the engine here employed, made by the National Meter Company of 84 Chambers street, New York, we described in the issue of March 30, 1899.

The stockholders of the Pan-American Exposition, at a meeting held this week in Buffalo, N. Y., decided to in-

place, 91 per cent.; the "Stringham," at Harlan & Hollingsworth's, Wilmington, Del., 72 per cent., and the "Goldsborough," at Wolf & Zwicker's, Portland, Ore., 62 per cent.

Trade with the New Colonies.—Reports from Washington show that the imports from the Philippine Islands for the month of February increased \$374,408, and the exports from the United States to the islands increased \$693,269, as compared with February, 1898. The imports from Porto Rico for the same month \$124,618, against \$89,186 in February, 1898. The exports to Porto Rico in February were \$267,619, or \$170,545 larger than in 1898. The exports to Cuba for the same month amounted to \$1,671,846, against \$1,166,744 last year.

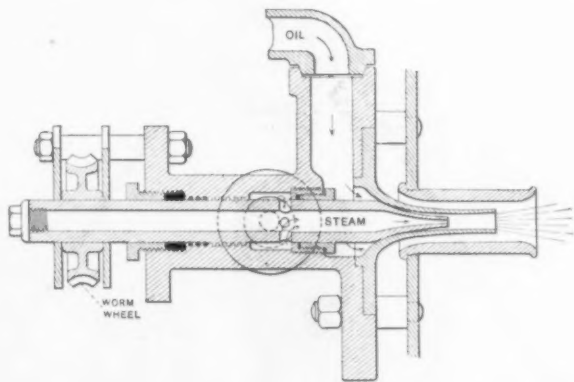
Information Wanted.—A correspondent desires to know the addresses of manufacturers of machinery for producing washboards.

The fire loss of the United States and Canada during the month of March, as compiled by the *New York Journal of Commerce*, reached a total of \$11,493,000, being \$7,000,000 less than the abnormally heavy February loss, but nearly \$4,000,000 ahead of the total for March, 1898. The total loss for the first quarter of the present year is \$40,680,000, almost \$11,000,000 above the corresponding quarter of last year.

The Urquhart Oil Injector.

Discussing the relative values of coal and liquid fuel the *Locomotive* states that in comparing the cost it is necessary to make proper allowance for the relative amounts of energy that the two contain. The estimate should be based upon the cost of the fuel per heat unit that can be realized from it. It is essential to distinguish between the forms of liquid fuel that are available for use, and to consider these forms separately. Fortunately a very simple classification will serve for our present purposes: for the only kind of liquid fuel that is available for steam making in large quantities is petroleum, or some product obtained from petroleum, and the only distinction that we shall find it necessary to make is between the products that are obtainable in Russia and those that are produced in the United States, and are on sale in our own markets.

The fundamental difference between petroleum fuel as used in Europe and in the United States is that in this country we use the crude petroleum as it comes from the well, while Russia and Italy and other European countries use the refuse that is left after the lighter constituents of the oil have been removed by a partial distillation. The Russian petroleum from the Baku region, near the Caspian Sea, contains a much smaller proportion of illuminating and lubricating oils than the American petroleum, and the refining processes that have been used there have not been perfected so fully as our own. For these reasons the proportion of the crude oil that is utilized for the production of naphtha, illuminating oils and lubricating oils has been far smaller than in the United States, and the refuse from the dis-



THE URQUHART OIL INJECTOR.

tilling plants has been correspondingly larger. Colonel Nabor Sollani, Chief Engineer in the Italian Navy, presented an important paper on "The Use of Liquid Fuel for Marine Purposes" before the International Engineering Congress, which was held in Chicago in 1893, in connection with the World's Fair, and in the course of this paper he states that only 25 or 30 per cent. of the output of the Russian wells has been utilized heretofore, the balance being practically wasted. With the improved methods of distilling that have now been introduced the showing is somewhat improved, but the proportion that is wasted is still very large. The present production, in the Caspian region, of oil that is suitable for fuel is probably about 1,000,000 tons per annum, and of this amount only about one-third is used; so that the present waste of fuel oil (or "naphtha refuse," as it is called) amounts at least to 600,000 tons per annum. It will be readily understood that, under these circumstances, the incentive to use liquid fuel under boilers is far greater than it is in our own country, where entirely different conditions prevail.

"The first steamers that ran on the Caspian Sea and along the Volga River," says Colonel Sollani, "used wood as fuel. But wood being scarce, especially along the Caspian coast, and being costly and bulky, the advantage was soon found of using naphtha refuse instead; and from the very beginning the attempt was successful, although the instruments employed were naturally imperfect. Progress was rapid, and very soon naphtha refuse displaced wood entirely. Subsequently the use of this kind of fuel was extended with success to locomotives and to all other kinds of boilers, furnaces and appliances for the working of which fuel is required. In boilers, whether land or marine, the oil fuel is burned through a little instrument called a pulverizer, in which the oil, pouring from it, is pulverized [or atomized] by a jet of steam, and projected in a finely divided state inside the furnace, where, mixing with the air, it burns, when lighted, with a large and long fan of flame that

fills the furnace, and keeps unaltered as long as the conditions of the jet remain unaltered. The fire is very powerful and easy to regulate and control. A simple match is sufficient to light it and a simple stop valve to extinguish it." Colonel Sollani goes on to say that on the Caspian Sea and in the Volga region petroleum refuse is now the only fuel used for steaming purposes, the boilers being all fitted up for oil alone, without any provision for the use of any other kind of fuel, simultaneously or alternately. The "pulverizers" that are used are all worked by steam, chiefly because it is easier to provide a blast of steam than a blast of air. After referring to the vast number of forms of "pulverizer" that have been tried, suggested, or patented, wherever the thought of oil fuel has occurred to anybody, Colonel Sollani says: "With all pulverizers the steam jet [or air jet] has the effect, not only of pulverizing the oil, but also of drawing in a current of air, which assists combustion. Some pulverizers are especially arranged for increasing this current of air and causing it to mix itself thoroughly with the pulverized fuel. As regards efficiency, they are all, more or less, on the same footing, and for practical working it appears that the pulverizers with round apertures are generally preferable to those with linear apertures, on account of the greater liability of the latter to get choked. Of course the linear aperture is more objectionable for the oil than for steam, the former being much less fluid than the latter, and liable to be dried up and coked by the heat of the fire. Moreover the oil may contain impurities and sediments which cannot easily be forced through, under the low pressure due to the head of the oil, from the oil feeding tank to the pulverizer. For this reason, other conditions being equal, the pulverizers of the injector type, with the oil tube in the center, appear preferable to those having the oil tube outside; but it should be said that if the outside tube is carried forward so as to project over the inner one its aperture becomes practically a round hole again, which is easily kept free from crusts of coked oil by the inner jet of steam. Such is the pulverizer which Mr. Urquhart has so successfully adopted for all the locomotives of the Griazi-Tzaritzin Railway and has fitted to so many express locomotives of the Great Eastern Railway."

Mr. Urquhart's pulverizer is here shown. The description of this form of pulverizer, as furnished to *Engineering* by Mr. Urquhart, is as follows: "The oil runs down a pipe, which ends in the external nozzle of the injector, while the steam passes through the inner nozzle, which it enters through a ring of holes, the steam and oil cavities being separated by a stuffing box packed with asbestos. This packing is renewed once a month. The steam supply is regulated by a valve on the pipe and independent of the injector, while the oil supply is increased or diminished by screwing the steam nozzle backward and forward in the external nozzle, and varying the section of the annular passage. This is effected by a worm and worm wheel, the latter of which is connected to the steam nozzle by a feather key, while the former is on a shaft which terminates in a position conveniently accessible to the fireman." Mr. Urquhart's pulverizer is entirely outside of the fire box, so that the carbonizing of the oil at the nozzle is reduced to a minimum. The blast of oil and steam is delivered into the furnace through a tube into which the nose of the injector projects, and through which a supply of air is also drawn by the action of the jet.

According to experiments made by Mr. Urquhart and by Nobel Brothers and others, 1 pound of Russian petroleum refuse, in burning, yields about 20,000 British heat units. Estimating the maximum heat energy of good coal at 13,900 heat units per pound, we find that when equal weights of coal and petroleum refuse are compared the heat energy is in favor of the oil in the proportion of 20,000 to 13,900. That is, the heat produced by the combustion of a pound of Russian petroleum refuse is about 1.44 times as great as that produced by the combustion of an equal weight of first-class coal. This difference in favor of the oil is not all realizable for motive power, however, as a certain proportion of the steam that is formed must be used in the pulverizers for introducing the oil into the furnace. The quantity of steam required for this purpose cannot be stated very definitely, since it appears to vary greatly under different conditions of operation. Thus Urquhart finds that on the Russian railways the steam required for the pulverizers varies from 8 to 13 per cent., the highest percentage being required in the winter. In a series of tests made with American crude petroleum in Minneapolis and St. Paul, Wm. A. Pike and T. W. Hugo found that 13.4 per cent. of the total water used was required for the atomizers. In the course of experiments made with reference to the use of Russian petroleum refuse in the Italian Navy, the percentage of steam consumed by the pulverizers was far smaller, the several percentages in eight trials being 1.3, 1.35, 1.75, 2, 2.3, 2.5, 4.1 and 4.4.

We are not aware that percentages as low as these have been obtained elsewhere. If it be assumed, as a basis for calculation, that the average consumption of steam by the pulverizers will be, say, 10 per cent. of the total steam produced, then the comparison of coal and Russian petroleum refuse, that we have made above, will be modified to the extent that 1 pound of the oil will produce about 1.30 times as much available heat as a pound of first-class coal, it being understood that by "available heat" we mean merely the total heat that is produced by the oil, minus that portion which is required to work the atomizer or pulverizer. There is an additional element in favor of the oil, of course, in that the cost of boiler attendance is less with oil feed than it is with coal; but as the saving so effected will vary to a considerable extent with the conditions of practice we shall omit it from our present calculation. The price of Russian petroleum refuse varies greatly with the locality, owing to the difficulty of transportation. Five years ago it could be had for from 60 cents to \$1 a ton on the Caspian Sea—say at an average cost of 80 cents a ton—and since a ton of this refuse is equivalent for motive purposes to about 1.30 tons of good coal, it follows that coal, to compete successfully with the oil, would have to be sold at $80 \div 1.30 = 61$ cents per ton. It is plain that under such conditions as these the problem of liquid fuel *versus* coal is extremely simple; coal simply has no argument in its favor whatever. As we pass away from the vicinity of the wells, however, we find that the price of the refuse rises rapidly, so that on the Mediterranean Sea it costs from \$10 to \$13 a ton. (These prices were quoted by Colonel Sollani in 1893. Doubtless the cost is somewhat less now, owing to increased facilities of transportation.) Good coal can be had at Mediterranean ports for less than half these figures, so that here the balance is largely in favor of the use of coal for all ordinary purposes.

The Industrial Commission to Investigate Trusts.

The Industrial Commission created by the last Congress, which is now investigating the conditions of labor and capital engaged in the mining industry, has decided to turn its attention to the combinations of capital commonly known as trusts. It is announced from Washington that an investigation on this head will be begun about the middle of May and continued until the end of June. The following statement of the intention of the Commission was made public this week:

The investigation of trusts or industrial combinations by the United States Industrial Commission will include any or all individuals, firms, corporations or combinations that from any cause, whether control of patents, favors of transportation companies, large capital or otherwise, may apparently so prevent or regulate or attempt so to prevent or regulate competition and production that they can fix the price of their products for the whole or a part of a market, with little or no reference to acts of existing competitors or to the cost of production and distribution. The Commission in its investigation of industrial combinations and large corporate industries wishes to secure from every source trustworthy information regarding the methods of organizing and conducting such enterprises and the effects of such organizations upon their rivals in trade, upon employees and upon society at large. To that end the Commission will collect reports and examine witnesses, but it also invites statements of facts along these lines from any one who is in a position to give them. Speculations regarding causes or results are not now needed, but facts of such a nature that the informant could verify them by an affidavit will be gladly received from any one.

At Pittsburgh efforts are being made to establish a minimum wage of \$2.75 for molders in the foundries in that city. The present minimum wage is about \$2.50 at a good many of the Pittsburgh foundries, and wages of molders have recently been advanced about 10 per cent. Among firms that have granted advances are the following: Mesta Machine Company, Pittsburgh Mfg. Company, Frank-Kneeland Machine Company, Lewis Foundry & Machine Company, Mackintosh, Hemphill & Co., Seaman-Sleeth Company, Westinghouse Machine Company, Westinghouse Electric & Mfg. Company, all of Pittsburgh, and the Porter Foundry & Machine Company of Allegheny, Pa.

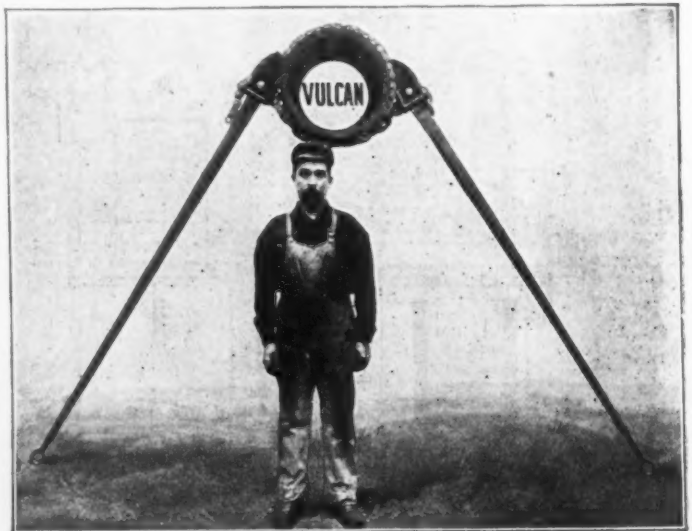
The Warner Iron Company, Nashville, Tenn., have been incorporated, with a capital of \$38,000, by John P. Williams, James Warner, W. E. McNeilly, John Diamond and F. J. Fuller.

Telegraph versus Telephone.

The telegraph is too slow for modern business methods. At least that is the experience of a Western dealer in old rails. It happened on a recent holiday that two dealers in the same city went to their respective offices to look over their morning mail. Both received an offer of a lot of old rails from a railroad manager 200 miles distant. Mr. A immediately called up the railroad manager by long distance telephone, caught him in his office, and in a few minutes closed the transaction, involving about \$50,000. Mr. B meanwhile called a telegraph messenger and sent a telegraphic offer for the rails. The telegram was delivered at the manager's office in due time, but as he had gone home it was held over until the following morning for his scrutiny. Mr. A, however, suffered no grass to grow under his feet, but on the same holiday called up a rolling mill 400 miles away, found the manager ready for business and sold the rails, thus cleaning up a profitable transaction within comparatively few hours, and long before the message sent by telegraph reached the person addressed. It is unnecessary to state the moral, as this is no fable.

The Vulcan Chain Pipe Wrench.

With the demand that has arisen for larger sizes of welded pipe there has come, necessarily, a call for appliances for handling the heavier lengths now made.



THE VULCAN CHAIN PIPE WRENCH.

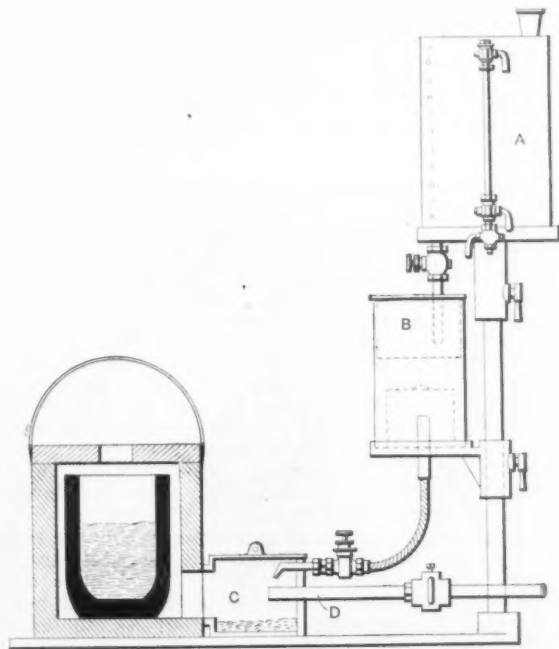
The engraving shows the most recent apparatus in the line of chain pipe wrenches—a tool unique in size, capacity and power. It is the new No. 16 Vulcan pipe wrench, made by J. H. Williams & Co., 9 Richards street, Brooklyn. The general dimensions of the tool, which has a range sufficient to take fittings on pipe 4 to 18 inches in diameter, will appear from comparison with the man's figure in the cut. The exact measurements are length, 87 inches; weight, 135 pounds; length of chain, 76 inches; chains are tested to a strain of 40,000 pounds.

The State of Delaware is now prepared to compete with New Jersey for the business of incorporating the many big new companies now being launched. The Delaware Legislature has just passed an extremely liberal and broad corporation law, by which every facility is afforded companies to transact their business, and a number of projected combinations are likely to take advantage of the opportunity given them in the Diamond State. The preliminary incorporation tax is 15 cents on every \$1000, whereas in New Jersey it is 20 cents. The annual franchise tax in New Jersey upon a corporation of \$25,000,000 capital is one-tenth of 1 per cent., namely \$25,000 a year, while in Delaware the tax is one-twentieth of 1 per cent. on the first \$3,000,000, one-fortieth of 1 per cent. on the next \$2,000,000 and \$30 on every million above \$5,000,000, thus making the annual tax on a corporation with \$25,000,000 capital \$2600 annually, against \$25,000 annually in New Jersey. The laws of Delaware allow all corporate meetings to be held out of the State, and the transfer books of the corporation can also be preserved anywhere outside of the State of Delaware at the will of the corporation.

Liquid Fuel Crucible Furnace.

The furnace here illustrated is intended primarily for brass melting, but the temperature obtained is sufficiently high to make it available for materials with higher melting points.

The makers guarantee the fusion of 40 pounds of brass in 30 minutes or less with $\frac{1}{2}$ gallon of tar oil or other similar liquid fuel, starting all cold, and that the apparatus can be started in full working order in 15 seconds from the time that the light is applied. Taking the average price of the class of oil used to be 2 pence per gallon, the cost of melting 40 pounds of brass is 1 penny, and adding the price of labor for half an hour, the total price works out approximately to 3 pence, which is undoubtedly much less than the cost of melting in crucibles by coke. The furnace is, moreover, much more cleanly than a coke furnace, and spilt brass can easily be reclaimed when the apparatus is cold, so that there is a further saving of some little importance in that direction. Unlike most heavy oil burners, only a small air pressure, such as can be readily drawn from the smith shop mains, is required. The action is extremely simple and will be at once understood from the



LIQUID FUEL CRUCIBLE FURNACE.

drawing. The upper vessel, marked A, contains the main oil supply. From there it falls by gravity through the cock shown into the filter vessel B. The cistern A being air tight, the level in B is always the same—that is to say, it just covers the mouth of the vertical tube. From B the oil descends through the filters, passes into the small pipe shown, through a valve just beneath B, not indicated in the drawing, then through a second regulating valve and out by the down turned nozzle. The air blast enters by the tube D, which has a hole at the end and a slot underneath. As the oil trickles over the tube it is blown by the air issuing from the slot to the bottom of the combustion chamber, where it is partly vaporized and partly burned. The resulting flame and gases issuing by the orifice circulate round the crucible, where combustion is completed, and the waste gas passes out through the hole in the lid. When a complete charge cannot be packed in the one crucible a second clay warming cylinder is used to prepare the extra amount. This crucible is placed upon the hole in the lid, and it is generally found that the metal in it is the first to melt—presumably because it is smaller in quantity. It will be observed that the level in the filter tank being constant, the rate of flow of oil is also constant. The two valves are employed, so that adjustment may be made with the lower, leaving the upper open full bore; then if it is desired temporarily to arrest the action of the furnace, the upper only is turned off without interfering with the adjustment, so that an immediate start may be made again without trouble. It ought to be noted that as there is no passage less than $\frac{1}{4}$ inch in diameter, the apparatus is quite free from the choking so frequent in small spray burners, and as whatever vaporization takes place is effected in a large combustion chamber in the presence of air, any non-volatile constituents of the fuel are immediately burned, entirely overcoming the caking difficulty.

The Conditional Nature of Patent Property.*

BY FRANCIS H. RICHARDS.

The subject of property, or patent property, is probably less generally understood than almost any other class of property rights, and necessarily the subject is a many-sided one. It is not my purpose to consider the question from a theoretical point of view, nor to deal with its legal phases, but rather to point out some practical considerations which have, as it seems to me, an important bearing on many enterprises of the present day.

Of course we are all familiar with the great monopolies, so-called, which have grown up in very recent times from the development of a few important inventions. Among these we shall at once recognize the telephone, the linotype machine, and a few others which have passed or are about passing beyond the ordinary sphere of patent enterprises and have taken upon themselves the character of great commercial organizations.

It is, however, to be noted that in the less prominent lines of industry almost innumerable undertakings owe their existence directly to the protection afforded by patents. Very many of the larger enterprises, now become established manufactures, and carried on as corporate institutions, were developed under the protection of the American patent system, and were thus enabled to become strong enough to finally sustain their work upon ordinary commercial lines, and even to extend their business throughout the larger part of the world. Instances of this class are found in the Singer sewing machine, the McCormick reaper and many others which will occur to the reader.

An important fact in connection with nearly all important enterprises of this class is that the patents which were at first relied upon for protecting the business were capable of being easily evaded; and that notwithstanding such incompleteness of patent protection, this protection was effectual for its intended purpose. In more recent years, owing doubtless to the increased competition among inventors, such defects and insufficiencies in the patent or patents under which a business may be developing involve a greater commercial risk than formerly. Consequently we need at the present time to more carefully consider the ways and means whereby the defects and insufficiencies of any particular patents or set of patents may in a practical way be cured or supplemented, whereby the property rights may be safeguarded.

It is sometimes remarked, especially by so-called conservative investigators, that while they are at liberty to risk their own investments they cannot permit themselves to encourage a similar risk on the part of a client or associate. While that view of the matter is in many instances entirely justified, it is often based upon a misapprehension of the conditions which necessarily appertain to the subject. It is an old adage that "nothing risk, nothing gain." This maxim might well be read: "With no great risk there is no great gain." But the risk is a relative matter and not an absolute one. That which in the hands of one party would inevitably fail may in the hands of another be successful. Not infrequently an enterprise which from one viewpoint has already failed has in fact merely reached the first toll gate on the highway to success.

The probability of success is measured by the environment and the resources available. One party, examining a certain enterprise and finding the risk of too hazardous a nature to warrant his attention, may very properly decide the enterprise to be impracticable, or, as to himself, impossible of accomplishment. This decision under the circumstances does not in the least indicate that from the standpoint and experience of some one else the same enterprise cannot be safely undertaken and effectually carried on to a successful conclusion. The real question, therefore, is not so much whether a risk exists, but what relation the existing risks and uncertainties bear to the ways and means that are available for overcoming them.

This principle is well illustrated by many of those newer institutions which are classed among the necessities of modern life. Consider, for instance, the many facilities which are now accomplished facts but which not so very long ago, as history is measured, could not have been produced by any one anywhere in the world. The electrical propulsion of cars, for instance, is an accomplished fact of almost immeasurable practical importance, and yet only a century ago such an achievement was not only undreamed of but was literally impossible of accomplishment under the conditions then existing. The same is true of the steamship, the modern locomotive, the ice making machine, the reaper, the telegraph and ocean cable, the telephone, the newspaper, the modern postal system, and of many other instrumentalities which have come to be considered necessary not only to the progress

* A paper contributed to the American Association of Inventors and Manufacturers.

but even to the sustenance of the race. The times and circumstances, therefore, rather than the risks and the difficulties involved, determine, broadly speaking, the feasibility at any given time and place of every undertaking which is possible within the limits of natural laws.

At the present time it is probable that in a strictly commercial sense the highest kind of property consists of public franchises. It also seems to be well established that patent property, under favorable conditions, is a good second, not even excepting real estate. While it is now generally recognized that an invention, and therefore the patent granted for the same, is property rather than a franchise, it is nevertheless a conditional property. That is to say, the title to this property is a conditional title and must remain so from the very nature of the case. From these considerations it seems to follow as a necessary consequence that the element of uncertainty, of risk, can never be eliminated from this kind of property.

The methods by which successes are wrought out in this domain result not from the elimination of the risk, but rather from the safeguarding of the enterprise against attack. What amounts to a fatally defective feature of one such piece of patent property, when considered by itself, may often be safeguarded by fortifying the approach through which that property may be attacked.

Through the amplification of inventions, therefore, and by means of successive patents which overlap in subject matter, as well as in the scope and character of the protection afforded thereby, the defects and risks inherent in particular patents can very frequently be effectually safeguarded. This view of the subject harmonizes very closely, it seems to me, with the almost universal experience of inventors, manufacturers and investors who have dealt extensively with such enterprises.

Among my own acquaintances there are a number who have in the course of time amassed considerable fortunes derived very largely through the exploitation of patents, but in no such case within my experience has the beneficial result accrued entirely from any one patent nor from any one species or grade of patent protection. The results in such cases have uniformly come, first from thoroughgoing protection in each case of so much as could fairly be had in that case, and in then extending around the commercial enterprise the protection of different classes of patents whereby, as I have already stated, the defect or incompleteness of one is safeguarded by another. Experience has shown that only in the rarest cases, if ever at all, is a patent finally interpreted by the court from the particular point of view taken by the inventor, or by his attorney, at the time the patent was granted. We have therefore not only to guard against the obvious defects, but also against those which are for the time being hidden or latent.

The measure of the risk, and especially the measure of the group of risks, which is involved in such an enterprise is, therefore, to be considered rather than the mere existence of a risk; for the risk is a condition inherent in the property itself. In this respect, however, the business of exploiting patents is not essentially different from other adventurous kinds of enterprises. Whether we deal in real estate, or go down to the sea in ships, delve in the earth for precious metals, or content ourselves with carrying on the most commonplace of industries located upon the solid land, the element of uncertainty is always present. It happens that in the longer established lines of adventure or enterprise a larger number of people have become accustomed to estimate the risk and to discount this in advance, and so, for the time being, they often lose sight of the fact that the risks and uncertainties really remain. The exploitation of patents in a large way being essentially a modern business with which as yet but few people, especially those engaged in strictly commercial lines, are well acquainted, it is not surprising that in this particular business the conditions should be so generally misapprehended. It can hardly be expected that the more numerous classes of investors will not continue, for a while longer, to misjudge this class of enterprises through a vain attempt to apply to them those business rules which relate to other lines of industry.

For reasons such as these, undoubtedly, it is generally necessary, in securing sufficient capital to carry forward to success any important industrial enterprise based on patents, that the investors should continue as they have generally done heretofore, to make their investment, to bet if this term be preferred, on the faith which they see their experienced acquaintance or associate actually has in the enterprise that is offered for their consideration. It is a fact too well established even to warrant discussion that investors as a class rarely make investments in such enterprises because of any favorable judgment which they may form from a personal investigation of the real merits of the business.

Many years of contact with that class of people confirms me in the views here expressed, which are also supported by the experience of others who have had an extended acquaintance in the same line of industrial work.

Ways and means which have in any given line of work usually been successful naturally come in the course of time to command the confidence of those who have interests in that particular direction. The exploitation of patents is no exception to this rule. Many have been disappointed because of investments made in patent enterprises through a misapprehension of the scope and character of the protection afforded by the patent. Of course it is true that in some cases the character and scope of the patent, even when these were known, have been either ignorantly or wilfully misrepresented. In this, as in other lines of business, the representations and the goods do not always correspond. Nevertheless patent property has become enormous in volume, and the interests involved compare favorably in extent and value with those of almost any other class or kind of property. It is therefore of the greatest moment that the relations existing between patents and the business carried on thereunder should be more accurately and more generally understood; that the risks and uncertainties, the scope and limitations of the protection should be clearly apprehended. The royal road to success, so far as there is one, seems clearly to lie in the direction of supplementing one patent by another and thereby cementing together into one homogeneous mass a complete system or network of protection which considered as a whole will be, during the life of the patent, substantially proof against serious attack, notwithstanding that no patent in the system may be even fairly strong when taken by itself.

Through the methods here outlined an enterprise of this class, based upon any really marked advance in a useful art, can generally be made sufficiently attractive to capital to induce the investment of a sufficient amount to insure commercial success. By thus consolidating into one system many related units of protection a sufficiently broad and sound basis can usually be built up to warrant the employment of enough capital to bring the benefits of the improvement to the general public in a relatively short time. This result is, to my mind, the primary object of the patent laws of the United States and of the constitutional provision on which these laws are based. And the public, broadly speaking, succeed to the beneficial results of any important invention much more fully and much more quickly when the invention is exploited upon these lines.

In the case of industrial enterprises which are broadly new, success demands ultimately a relatively large investment of capital. Proverbially, "capital is timid." It is especially so in the hands of the smaller holders. To secure the necessary capital requires, therefore, a high degree of safety for the investment. To secure this safety in an enterprise of the kind here discussed requires great strength of protection; and this strength, again, is only secured through the union of many separate protective elements or units. In other words, this new and modern field of commercial adventure but emphasizes anew the established principle that "In union there is strength."

It is announced that Cecil Rhodes has now obtained a guarantee from the German Government upon the capital of the German portion of the Cape to Cairo Railroad. German financiers have agreed to provide the capital, and Germany has also agreed to guarantee a certain portion of the interest upon the German cross line from Dar-es-Salaam, 25 miles south of Zanzibar, which is to tap the Cape to Cairo Railroad.

The first contract in the construction of the largest grain elevator in the world has been let by the Great Northern Railway. The elevator is to be located at West Superior, Wis., and will be built of steel at a cost of over \$2,000,000. Its capacity is to be 6,500,000 bushels of grain, or 2,500,000 more than the largest existing elevator. The elevator will have provision for wheat, corn, flax and oats, and is to be completed by next January.

The United Brotherhood of Carpenters have sent a corps of organizers throughout the country with the view of preparing their unions to make a general demand for an eight-hour working day on May 1. The Brotherhood have 800 local unions in the United States. Already the eight-hour day for carpenters is established in 105 cities and towns.

Evidences of progress in China are multiplying. Siemens & Halske of Berlin, Germany, have been awarded by the Chinese Government contracts for the installation of an electric light plant and the establishment of an electric tramway in Peking.

The Iron Age.

New York, Thursday, April 13, 1899.

DAVID WILLIAMS COMPANY,	-	-	-	-	-	-	PUBLISHERS.
CHARLES KIRCHHOFF,	-	-	-	-	-	-	EDITOR.
GEO. W. COPE,	-	-	-	-	-	-	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	-	-	-	-	-	-	HARDWARE EDITOR.
JOHN S. KING,	-	-	-	-	-	-	BUSINESS MANAGER.

Solicitude for the Export Trade.

The importance of our export trade in manufactured products is not only acknowledged by iron and steel manufacturers but is giving them considerable food for thought. They would like to be able to control prices and prevent such an extreme rise as to throw our markets out of line with the markets of the world. Recent appreciations in iron and steel prices are ascribed to consumers, and responsibility for them is repudiated by manufacturers. It is claimed that consumers have become unduly excited, and have tried to purchase either more than ordinary business conditions would warrant or to imprudently cover their requirements further ahead than they should. Manufacturers have been obliged to protect themselves by advancing their rates, even while deploring action of that kind. In this way some of the most conservative manufacturers, men whose influence has been strongly exerted against anything like a boom, have recently appeared to be leaders in marking up prices, and have thus seemed to completely change their sentiments. But they have done so to discourage buyers, and by gaining a little time convince them that the supply will be sufficient for all purposes.

Leading men in one of the recent important consolidations express their deep interest in consumers who manufacture goods largely for export. They assert that it is much better for the country to export highly finished products than crude material, because the latter simply enables foreign manufacturers to compete with our own people in what we find profitable and desirable lines. The agricultural implement trade is a conspicuous example in this connection. Very high prices for iron and steel would not only curtail the domestic demand for farm machinery, but would more seriously operate to the disadvantage of the export trade. The effect would not be seen immediately, because the machines built this year are being constructed of material bought before much of an advance was made. Those to be built after July 1 will bear the burden of the higher cost of materials. It is stated even now that if iron and steel prices are not put on a more reasonable basis for this class of work a great deal more wood will be used in building farm machinery so as to cheapen the cost of production. This would be a step backward, which the iron and steel trade no less than the makers of farm machinery would regret to see. In the past few years iron and steel have been so cheap that wood has been largely displaced, enabling stronger and more durable implements to be furnished at lower prices than when wood was an important component part.

It is not necessary that prices should go back to even an approximation to the low level of the late depression in order to retain our export trade. They were then altogether too low, ranging much under the level of the world's markets. Manufacturers for export could afford to pay considerably above such prices and still enjoy a share of the foreign trade. Iron and steel producers would prefer to make reason-

able prices, which would afford them fair profits and at the same time cause no disarrangement of the currents of trade. To a great extent the consumers have the power to accomplish such a result. If they will desist from paying premiums for early shipment, and make their own customers exercise a little patience, they will find that the supply of iron and steel is big enough to go round, and that the price will be right instead of extravagantly high. If the fever for buying can be allayed the country will work into a healthy condition of trade that should last for a long period. Our industrial health now depends quite considerably on the preservation of our export outlets.

"Industrials" on the Stock Exchange.

The so-called "industrials" have been particularly prominent in recent Stock Exchange transactions. There has been extensive trading in their shares, together with heavy fluctuations in prices, resulting doubtless in losses to many investors. The net result was a marked decline in industrial securities as a class, and an evident discrimination against them when offered to banks as collateral. Last week's trading on the New York Exchange included 1,611,698 shares of the common stock of four of the new iron and steel combinations and 206,241 of their preferred shares—representing \$121,793,900 at par. There was a range of prices during the week, from highest to lowest, of 62½ to 44 in the case of one of the companies, of 75 to 57½ in another and 71½ to 58½ in a third. The fluctuation in the shares of 100 railways during the same time averaged a fraction over 2 per cent. on their par value; in the case of 33 of these roads the range between highest and lowest prices was not over one point, and in several stocks there was no change during the week.

A condition of absolutely fixed values of securities is impossible; even United States bonds change slightly from day to day. But the wide range of prices for the new industrials indicates that, for the most part, they are regarded by the public as having only a speculative value, as distinguished from other securities in which investors feel encouraged to put their money permanently. The same thing was true, at an earlier day, of railway stocks. While the promoters of the first railway lines were struggling to get them started, to overcome engineering difficulties and to avoid bankruptcy such of the shares of the various companies as came on the market served only as a football for speculators; nobody thought of buying them as an investment. But now that the permanent earning capacity of railways has become assured, their securities are in demand among investors, while they appeal less to the interest of speculators, being less susceptible now than formerly to "bull" and "bear" movements. Another factor has been the disappearance of stock speculation by the management of the railway lines—once supposed to be largely practiced. To day public sentiment would hardly tolerate the control of a railway property on the basis of going into Wall street to put up or down the price of shares, in order that one interest or another might gain the upper hand in the direction of its affairs. It is now recognized that the duty of a railway board is to attend strictly to the business of transportation, and that the only reason for the existence of the road is that the public may be served, such service, wisely conducted, being capable of yielding a profit on the capital invested.

We have mentioned already some of the points of

similarity between the development of the great railway systems and that of the industrial consolidations now taking place. It will be but natural if another parallel shall be found in the evolution of industrial shares from a mere plaything of the professional speculator into such evidences of assured value as will be in demand for permanent investment. This will come about in proportion as the promoting element in the new field of industrial financiering loses its prominence, and the various incorporations involved become known only in connection with the production of commodities for which there is a general demand. As to the Stock Exchange *per se*, there can be no objection; it may supply an important link in the modern financial system. Just as the world's progress gained a distinct advance from the introduction of the limited liability corporation, by means of which the accumulation of capital for railways, factories and the like was encouraged, so now the Stock Exchange, by offering a broader opportunity for the sale and transfer of company shares, exerts an influence directly favorable to investments in corporations. It is no argument against the Stock Exchange that prices of securities are influenced sometimes by means of false rumors purposely put into circulation, or that some men in pursuit of quick riches are ruined by making investments which turn out badly. There were some traders in the world less wise than others, no doubt, before the human race learned to wear clothes.

If there were no such thing as "manipulation" of share prices, the quotations on the exchanges might be regarded as a safer index to the value of corporate properties. A certain issue of industrial shares has been seesawing between 10 and 65, practically with no change in the value of the tangible properties of the company or of their earning capacity—simply as the result of efforts by professional operators, some of whom have profited to an amount larger than all the earnings which the company's directors have been able to show. There is a prospect, however, that any industrial corporation which is controlled along legitimate lines will in time become an assured dividend payer, just as the great railways have done, and when the conditions of such a company have become fixed and known it will be more difficult to affect the prices of its securities by false reports; nor will every adverse incident destroy public confidence. When, a few years ago, so many railways went into the hands of receivers, the investing public recognized that their troubles were due to conditions of depression that were temporary, and there was no rush to unload holdings of their securities. The same conditions will obtain, no doubt, in the case of such industrial combinations as deserve to live. But as we have before pointed out, the manufacturing corporation which fails to render to the public a better service for the same money than any other already existing or better than any other that can be formed lacks the first element of permanency and the most essential one.

Doubtless it has been asked what will become of the industries that have become consolidated lately in case the plans of organization should not succeed. Just what happens in the case of a railway when one management has failed to operate it profitably might happen to an industrial enterprise which possessed a valuable plant and a trade of good dimensions—reorganization, new managers and perhaps additional capital. This has happened a thousand times in the case of small manufacturing companies, and some of the new large aggregations resemble the smaller con-

stituent concerns more than some people may think. There is not one economic law for the large corporation and another for the small one. There is no great industry in the country really controlled by a monopoly—none which is not subject to the ordinary rules of trade competition—none that can be conducted profitably in connection with Wall street speculation.

If promoters of great consolidations want to unload upon the public the "common stock" in which their services have been paid for, there is no law to prevent it; perhaps in no other way can the public gain so promptly that experience necessary to fit it to deal with a new class of securities. But whenever there is a slump in the prices of such stocks—when everybody wants to sell and none to buy, and bankers hesitate to take them as collateral—it does not mean necessarily that the industry in which the corporation is engaged is in a bad way. The factory or foundry is worth just as much as before, and the business of production may not be less profitable. But if, as in the case of the ill-fated cordage combination some years ago, the chief business of the management should be transacted in Wall street, even to the extent of borrowing money to pay dividends not earned at the factories, a very slight cloud of distrust might cause the overthrow of the biggest sort of a corporation, throwing its assets into the hands of receivers, to go eventually to those creditors or others having the largest equity in them.

Our Consuls and Foreign Trade.

The great number of inquiries which United States Consuls have received lately from manufacturers here who want to secure wider markets indicates an encouraging growth of interest in the subject of export trade. But there is danger that too much dependence may be placed upon the Consuls, to the neglect of efforts proper to be made by would-be exporters themselves if they are to make an impression upon foreign markets. The reports which have resulted from these inquiries, and which are printed by the Government for the promptest possible distribution, have given evidence in many cases of intelligent, painstaking work by capable men, while others indicate quite the contrary. On the whole, these reports contain a mass of information capable of being made useful in the export trade, together with many suggestions worthy of consideration. The latter, however, are chiefly such as should occur to any good business man. There should be no need of Consuls to advise us to study the tastes of foreigners before offering to sell them goods, or to take special pains in packing goods for export, or to be prepared to extend credit on more liberal terms than are customary here, or not to ship goods on false representations as to quality. Yet these points are the constant burden of reports forwarded to Washington by our Consuls. As for the information contained in the reports, even when trustworthy it is seldom so specific as to enable one who is without further knowledge to sell goods in any particular new market. The situation may be summed up by saying that an export house with no acquaintance with a given market beyond what is to be gleaned from the consular reports is not qualified to sell goods there, while if it were not well informed the aid of such reports would hardly be needed.

It is not implied here that such things are better done abroad. On the contrary, the American consular reports are often fuller and more accurate, and they are certainly more prompt in the matter of pub-

lication than those of many European countries, and, as a rule, they are spoken of abroad in terms of commendation. Nor is there reason to discourage their publication. Undoubtedly the Consuls—at least where the right sort of men are appointed—have, in addition to performing the routine duties of their offices, opportunities to collect information of a general nature bearing upon commercial affairs which can be put to good use. A recent notable example of what may be done in this line is the volume of special reports made at the instance of the British Board of Trade by Her Majesty's Consuls on the competition which the manufacturers of that country are meeting in all the markets of the world, and the apparent reasons in the case of success on the part of the competitors. No private agency is interested in trade on a sufficiently broad scale to undertake such an inquiry on its own account, and, even if it were, it would be unlikely to give the results to the world.

On the other hand, the Consuls as a class are at least men who cannot be credited with any intention deliberately to belittle their country's trade, and what some of them may lack in general capacity is offset by their longer observation at their respective posts than could be given by a private agent sent out for a particular investigation. Besides, a report showing a decline in the relative importance of Great Britain in the markets of the world, made public through the agency of the Government, must make a deeper impression than any private publication could possibly do. The lesson of such a report to Englishmen in the export trade is that it may be necessary to modify their methods if they would not still further lose ground; to those yet to engage in it that they must begin prepared to consider new methods instead of merely following business traditions. In any event, a report has been produced that is capable of serving a good purpose to British traders if they will take advantage of its facts, and our own Consuls at times may serve us equally well, as they have done already in reporting on matters of less importance.

There are people, however, who think that our Consuls should sell their goods. They not only direct requests for information to the consulates, and flood them with circulars and catalogues for distribution, but even ask the Consuls to recommend their products. If increased sales do not result from these methods they vote the consular service a failure and demand its reform. No doubt we shall yet have a higher standard of qualification in the consular service as public sentiment becomes educated to the idea of making the consulates something more than rewards for special activity in influencing political elections. But even were every Consul a well trained and experienced business man, on a basis of pay twice as liberal as that now existing, they could hardly become salesmen for everybody who demanded their services. Aside from the general principle that it is no more the business of the Government to pay the salaries of salesmen in South Africa than in South Carolina, or in Berlin more than in Boston, it would be impossible to find one man qualified equally well to sell in any foreign market all the different classes of products which Americans have for export, or one who should be able to escape the charge of favoritism in case one line of goods in his hands seemed to sell better than another.

The sentiment in favor of reform in the consular service is to be commended. The system of appointment on merit alone, with the tenure of office unaffected by political changes at home, would lead

gradually to a higher degree of efficiency in the performance of the work for which the service exists—the protection of the interests of American shipping in the ports at which the Consuls are stationed and the rights of American citizens residing at or traveling through those places. Incidentally, the appointment of men of better average qualifications—and this would involve better pay—would make possible more thorough reports on commercial topics than are now the rule. But the actual sale of goods in foreign markets must depend upon the exertions of the people who will profit directly from their sale; it is not to be expected of the Consuls under any circumstances.

CORRESPONDENCE.

Exchange on Out of Town Checks.

To the Editor: We desire to be heard upon the recent adoption of the amendment to the constitution of the New York Clearing House.

Nearly every manufacturer and jobber in the East finds of course nine-tenths of his United States trade located west of New England. These are not times for us to return to old methods long since discarded, and we would therefore suggest that all of our manufacturing friends recommend to their bankers the advisability of opening an account in Chicago and clearing through the Chicago Clearing House, which can be done without cost to them. This would overcome the necessity of returning to the custom of having to pay exchange on checks. We feel confident that the balance sheets of the various United States manufacturers will show that the banking institutions have done far better during the past few years than any manufacturing or jobbing institution, and in the face of prosperous times, when all of the idle capital held by banks is to be actively employed, we do not see that it is to the interest of the community at large to return to the old system of charging exchange on remittances, as we hope soon to have pneumatic tubes to New York and elsewhere, where we can land our checks before the ink gets dry, or some other up to date system that will show advancement rather than a recoil.

WELLS & NELLEGAR COMPANY,

Robert M. Wells, Treas.

CHICAGO, ILL., April 5, 1899.

To the Editor: Our mails, as we presume those of all other merchants latterly, have been flooded with notices from our Eastern correspondents to the effect that the New York Clearing House proposes to charge for the collection of each and every check outside of New York City, therefore our remittances should be strictly New York exchange, &c. Following on the heels of this come solicitations from a number of the banks calling attention to the same resolution and intimating the necessity of every man in business carrying a New York account in order that such exchange can be readily furnished. We presume this was the object of the Clearing House, which is the association of the banks, in making such a ruling—viz., to force a large deposit in New York on which no interest would be paid. But we believe that it is a poor way to bring about the desired result.

Any multiplication of small annoying charges of this kind reminds one of the inevitable charge of the European hotels for stamp, 2 cents; candles, 1 franc, &c. It is vexatious and we believe in this country will tend to discourage rather than encourage business in any community where it is practiced.

New York has driven away from its port both imports and exports just by reason of charges here and there, making up excessive costs, thereby adding unduly to the cost of the goods. Parties in interest have now awakened to this fact and are berating the railroads for not making special concessions to force business their way. The fact is that an importer who does not actually live in New York had rather bring his goods in by any other port than that, on account of the saving in expense.

The banks should have learned something from this. The earnings of the New York banks have always been large, and we think, no matter how low the rate of interest, with the immense deposits they have, which constitute a loanable fund at all times, they should have been satisfied with the results. Call money on industrials latterly, for example, has been fairly remunerative.

The center of manufacturing and consequent financing has been moving Westward for a number of years.

This action of the New York banks will serve to accelerate it. It will be noted that Chicago has not followed this illiberal lead and that the center of the large schemes of combinations of manufactures is located in Chicago. Such institutions there as the First National Bank, the Illinois Trust Company, the Merchants' Loan & Trust, &c., are formidable rivals for New York's business. The way to build them up is just exactly what the New York banks have done. Banking for strictly Eastern points can be done in Boston or Philadelphia, if these cities maintain their present encouraging attitude, but for the whole central part of the country we predict that Chicago will take the lead. **MERCHANT.**

LOUISVILLE, KY., April 4, 1899.

OBITUARY.

EDWIN R. WARRINGTON.

Edwin Rowland Warrington, senior member of the firm of E. R. Warrington & Co., metal brokers, of Philadelphia, died at his home in that city on Sunday, April 9, aged 61 years.

FELIX BROWN.

Felix Brown, senior member of the firm of A. & F. Brown Company, Elizabeth, N. J., died April 6 at his home in Elizabeth, from paralysis. He was born in Belgium in May, 1826, and came to the United States 50 years ago. He learned the machinist's trade, and embarked with his brother in the business of making shafting, pulleys and power machinery. The firm became known as the Progress Iron Works, and 15 years ago the extensive plant now in operation at Elizabethport was erected. It now employs 300 hands. The company's principal office is in the Havemeyer Building, New York. Mr. Brown is said to have invented the foghorn for mariners, and also a number of machines and devices used for various purposes.

GEORGE PEACOCK.

George Peacock, senior member and founder of the Peacock Iron Works, Selma, Ala., died at his home in that city on March 26, at the age of 76 years. He was born near Stockton-on-Tees, Durham, England, and at the age of 14 was apprenticed to the trade of a molder. In 1848 Mr. Peacock came to this country and obtained a position in Townsend's Foundry & Machine Shops, at Albany, N. Y. From Albany he went to Troy, and from there to Cleveland, Ohio. He then went to Louisville, Ky., and built the water works for that city. He next went to Natchez, Miss., and was managing Churchill & Co.'s large iron works at that place when the war broke out. His knowledge of the manufacture of the munitions of war secured for the Churchills their first contract from the Confederate States. Their iron works were subsequently removed to Columbiana, Ala. In 1863 Mr. Peacock went to Selma as superintendent of the naval foundry of the Confederate Government, located there, with the rank of Captain of Ordnance. Subsequently he founded the iron works which bears his name, where he engaged in the manufacture of car wheels, axles and cars of all kinds. He was one of the first persons in this country to manufacture iron pipe, and took out some of the first patents in this line. Mr. Peacock was also one of the pioneers in the iron business of Alabama. When called to take charge of the Ordnance shops at Selma he was obliged to find the material to make the cannon, and he then initiated the development of the Alabama iron industry, which has now reached such great proportions. He was one of the most useful and public spirited citizens of Selma, and was generally respected in the community for his philanthropy and integrity. Mr. Peacock had a natural inventive talent, and during his long and useful life numerous inventions that have been of great benefit to his trade were patented by him. He was the inventor of the Peacock self oiling wheel, which is widely in use all over the country wherever there is a mine or other plant using tram cars.

The Russian Rail Contract.

We have received official confirmation of the report that the Russian order for 80,000 tons of steel rails was placed with the Maryland Steel Company last week. Negotiations were pending between this concern and the Russian Government regarding this order when the price of rails was much lower than the present rate. These negotiations fell through, and it is officially stated that the contract was placed at a figure substantially advanced over the original quotation.

The total capitalization of companies incorporated under the laws of the State of New Jersey in the month of March was in the neighborhood of \$1,500,000,000.

PERSONAL.

Geo. A. Tripp, formerly of the firm of C. Sidney Shepard & Co., Chicago, is now identified with the Iroquois Iron Company of Chicago, being treasurer of the corporation and one of the Board of Directors. The Iroquois Iron Company are the new owners of the furnace formerly operated by the Iroquois Furnace Company, at South Chicago. M. Cochrane Armour is president of the company and Wm. A. Rogers is vice-president, both of them members of the pig iron firm of Rogers, Brown & Co.

C. L. Miller, general superintendent of the Joliet Works of the Illinois Steel Company, has resigned and M. McMurray succeeds him in the same capacity. Mr. Miller filled the position for nearly two years, having previously had charge of several of the company's blast furnaces. Mr. McMurray has been connected with the Joliet Works for several years, so that his appointment comes as a promotion.

Henry M. Curry of the Carnegie Steel Company, Limited, has returned to Pittsburgh from California.

General Russell Hastings of Massachusetts has declined President McKinley's appointment as director of the Bureau of American Republics. Frederick Emory has been reinstated as temporary director, pending a new appointment.

John W. McCloud, secretary of the Master Car Builders' Association, and formerly general Western sales agent of the Westinghouse Air Brake Company, has been appointed London representative, with the official title of vice-president and general manager, of the Westinghouse Brake Company, Limited, at London, England.

T. J. Osterling, an architect, of Pittsburgh, has been notified that his plans for a new court house at Wilkes-Barre, Pa., have been accepted. The new structure will be in the shape of a cross, 190 x 88 feet in size, and will have two wings. It will be four stories high, entirely fire proof, and will cost \$500,000.

Ferdinand W. Peck, United States Commissioner-General to the Paris Exposition, and B. D. Woodward, Assistant Commissioner-General, sailed for Paris on Wednesday by the American Liner "St. Louis." Mr. Woodward will remain in Paris during the summer in charge of the office of the United States Commission in that city. Major Fred. Brackett, secretary of the Commission, remains for the present in New York in charge of the local office.

U. E. Dennis, formerly superintendent of the American Tin Plate Company's plant at Elwood, Ind., has been appointed manager of the company's Monongahela plant at Pittsburgh, Pa.

James O. Nesbitt, formerly assistant master mechanic at the Edgar Thomson Steel Works, Braddock, Pa., has been appointed master mechanic of the Alabama Steel & Shipbuilding Company, Ensley, Ala.

At the recent annual stockholders' meeting of the Hardy Machine Company, Biddeford, Maine, the following officers were elected: President, Charles E. Goodwin; secretary, Jesse Gould; treasurer, D. H. B. Hooper.

W. H. Stadelman, manager of the New York offices of the Brown Hoisting & Conveying Machine Company, 26 Cortlandt street, has returned from a trip South.

To Encourage Russian Shipbuilding.

United States Consul General Holloway, at St. Petersburg, has sent to the State Department the following translation of a report of a meeting of the Council of Commercial Navigation of the Department of Trade and Manufactures, held recently in St. Petersburg: The main point of the measures proposed to the Council consisted in admitting into Russia free of duty, for a period of ten years, foreign iron and steel for building sea vessels, which have been imported duty free since April 27, 1898. In order to facilitate the application of the measures it is proposed to fix a limited period during which iron and steel may be imported duty free. As a guarantee the shipbuilder will pay a certain sum, which will be returned to him when the vessel is completed. Besides, it is proposed to import duty free whole parts of the mechanisms of vessels, such as are not manufactured in Russia—viz., cylinders exceeding 10 inches in diameter, windlasses for anchors and steam helm apparatus.

The well-known firm of Crocker Bros., 32 Cliff street, New York, iron and metal merchants, will, about April 25, move from their present quarters, which they have occupied as warehouse and office for upward of 40 years, to the Phelps-Dodge Building, corner John and Cliff streets, where they have a commodious suite of offices.

A Recovery in Pig Iron Production.

The temporary decline in the production of pig iron has been recovered in March, and through the blowing in of a number of additional furnaces it has been further increased, counterbalanced only partly by the stoppage for repairs of some of the larger stacks.

The weekly capacity of the furnaces in blast on April 1 compares as follows with that of preceding periods :

	Furnaces in blast.	Capacity per week. Gross tons.
April 1, 1899.....	205	245,746
March 1.....	192	228,195
February 1.....	195	237,639
January 1.....	200	243,516
December 1, 1898.....	195	235,528
November 1.....	196	228,935
October 1.....	192	215,635
September 1.....	186	213,043
August 1.....	187	206,777
July 1.....	185	216,311
June 1.....	190	225,398
May 1.....	194	234,163
April 1.....	194	233,339
March 1.....	193	234,430
February 1.....	184	228,338
January 1.....	188	226,608
December 1, 1897.....	191	226,024
November 1.....	183	213,159
October 1.....	171	200,128
September 1.....	161	185,506
August 1.....	152	165,378
July 1.....	145	164,064
June 1.....	146	168,380
May 1.....	146	170,528
April 1.....	153	173,279
March 1.....	156	169,986
February 1.....	154	162,959
January 1.....	154	159,720
December 1, 1896.....	147	142,278
November 1.....	133	124,077
October 1.....	130	112,782
September 1.....	145	129,500
August 1.....	173	157,078
July 1.....	191	180,532
June 1.....	194	182,220
May 1.....	196	189,398
April 1.....	200	187,451
March 1.....	207	189,583
February 1.....	215	198,599
January 1.....	241	297,481
December 1, 1895.....	242	216,797

The status of the charcoal furnaces was as follows:

Charcoal Furnaces in Blast April 1, 1899.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New England.....	11	2	175	9	850
New York.....	12	12	190	0	0
Pennsylvania.....	13	1	60	12	610
Maryland.....	4	0	0	4	569
Virginia.....	4	0	0	4	437
Ohio.....	1	12	190	5	300
Kentucky.....	3	0	0	3	200
Tennessee.....	9	1	280	8	2,240
Georgia.....	3	0	0	3	670
Alabama.....	12	2	618	10	2,250
Michigan, Missouri and Wisconsin.....	18	7	3,264	11	4,190
Texas.....	4	0	0	4	875
Utah.....	1	0	0	1	175
Oregon.....	1	0	0	1	275
Totals.....	92	17	4,777	75	13,641

As compared with previous months the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
April 1, 1899.....	17	4,777
March 1.....	16	4,330
February 1.....	17	4,967
January 1.....	20	6,026
December 1, 1898.....	18	6,018
November 1.....	20	5,947
October 1.....	20	5,732
September 1.....	21	6,293
August 1.....	22	6,459
July 1.....	19	5,647
June 1.....	20	6,762
May 1.....	18	6,571
April 1.....	16	5,716
March 1.....	16	5,470
February 1.....	14	4,734
January 1, 1898.....	16	5,442
December 1, 1897.....	19	5,061
November 1.....	19	4,656
October 1.....	20	4,696
September 1.....	21	4,555
August 1.....	20	4,903
July 1.....	14	2,864
June 1.....	15	3,321
May 1.....	13	3,729
April 1.....	16	5,398
March 1.....	18	5,425
February 1.....	19	5,144
January 1, 1897.....	19	5,456

The status of the coke and anthracite furnaces was as follows:

Coke and Anthracite Furnaces in Blast April 1.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New York.....	11	3	4,092	8	6,164
New Jersey.....	12	1	1,672	0	0
Spiegel.....	3	3	501	0	0
Pennsylvania:					
Lehigh Valley.....	26	12	6,950	14	5,085
Spiegel.....	1	0	0	1	90
Schuylkill Valley.....	11	6	4,438	5	3,647
Upper Susquehanna Valley.....	4	3	3,221	1	600
Lower Susquehanna Valley.....	10	4	4,447	6	2,221
Lebanon Valley.....	11	10	7,541	1	534
Spiegel.....	1	1	445	0	0
Pittsburgh District.....	30	27	61,726	3	2,045
Spiegel.....	2	2	1,031	0	0
Shenango Valley.....	15	11	17,185	4	4,429
Western Pennsylvania.....	20	10	12,990	10	5,280
Spiegel.....	1	1	863	0	0
Maryland.....	5	3	5,770	2	1,950
Wheeling District.....	9	9	11,652	1	1,080
Ohio:					
Mahoning Valley.....	13	10	16,801	3	3,255
Central and Northern.....	9	7	11,058	2	1,940
Hocking Valley.....	2	1	340	1	550
Hanging Rock.....	12	6	2,601	6	1,432
Illinois.....	16	14	27,329	2	1,750
Spiegel.....	1	1	800	0	0
Minnesota.....	1	0	0	1	629
Wisconsin.....	4	3	2,312	1	700
Missouri.....	2	1	950	1	600
Colorado.....	3	2	1,275	1	700
The South:					
Virginia.....	22	9	6,233	13	7,900
Kentucky.....	5	4	2,707	1	375
Alabama.....	30	18	19,287	12	9,100
Tennessee.....	13	6	4,471	7	3,890
Georgia.....	2	0	0	2	960
North Carolina.....	2	0	0	2	600
Totals.....	299	188	240,969	111	67,406

In comparison with previous months the record of the coke and anthracite furnaces stands as follows in gross tons:

	Number in blast.	Capacity per week.
April 1, 1899.....	188	240,969
March 1.....	175	223,865
February 1.....	178	232,672
January 1, 1899.....	180	237,490
December 1, 1898.....	177	229,510
November 1.....	176	222,988
October 1.....	172	219,903
September 1.....	165	206,750
August 1.....	165	200,318
July 1.....	166	210,664
June 1.....	170	218,636
May 1.....	176	227,592
April 1.....	178	227,623
March 1.....	177	228,960
February 1.....	170	223,604
January 1, 1898.....	172	221,166
December 1, 1897.....	172	220,962
November 1.....	164	208,503
October 1.....	151	195,492
September 1.....	140	180,951
August 1.....	132	161,375
July 1.....	131	161,170
June 1.....	131	165,059
May 1.....	133	166,799
April 1.....	137	167,911
March 1.....	138	164,561
February 1.....	136	157,815
January 1, 1897.....	135	154,294

During March the following stacks were blown in: Carbon, and one Lock Ridge and one Saucen of the Thomas Iron Company, in the Lehigh Valley; Alice and Sharpsville, in the Shenango Valley; North Cornwall and one Sheridan, in the Lebanon Valley; one Maryland, at Sparrow's Point; Covington, in Virginia, and one Hubbard, in the Mahoning Valley. Work was stopped by the River Furnace, at Cleveland, and the Anna Furnace, in the Mahoning Valley.

Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as follows on April 1, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.	Mar. 1.	April 1.
Anthracite and coke.....	458,111	441,971	402,290	395,311	328,987	229,907
Charcoal.....	114,901	107,353	104,315	97,598	98,094	82,056
Totals.....	573,012	549,324	506,605	492,909	427,081	311,963

Warrant Stocks.

We are indebted to the American Pig Iron Storage Warrant Company for the following statement of stocks of warrant iron:

	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.	Mar. 1.	Apr. 1.
Coke and Anthracite.....	157,300	122,000	113,100	100,700	95,000	82,700
Charcoal.....	40,300	38,800	37,700	34,500	31,300	27,600
Totals.....	197,600	160,800	150,800	135,200	126,300	109,700

Canadian News.

Iron Production in Ontario.

Toronto, April 8, 1899.—In moving the House into committee on his resolutions granting aid to blast furnaces which use charcoal made in Ontario as fuel for smelting ores, which resolutions were reported in *The Iron Age*, Mr. Gibson, the Commissioner of Crown Lands for Ontario, reviewed the progress of the province along lines of mineral production. At the blast furnace at Hamilton, which was started in 1896, there were produced, he said, in the three years 1896-7-8, 100,566 net tons of pig iron, valued at \$1,172,696. It employs 130 men and has paid out \$148,475 in wages in the three years. He gave the following statistics:

	1896.	1897.	1898.
Ore smelted, net tons.....	51,138	37,492	77,024
Ontario ore, net tons.....	15,270	2,770	20,968
Pig metal product, net tons.....	28,302	24,011	48,253
Value of product.....	\$353,780	\$288,128	\$530,788
Wages paid.....	\$47,000	\$40,000	\$61,675
Number of employees.....	125	130	130

From the bounty fund of the province the Hamilton Furnace has earned during the past three years about \$15,000. For 1898 its claims for bounty, which were proved only a few days ago, amounted to \$8,567.27. Dealing with the amendments to the Mining act, which are intended to encourage exploration, the Commissioner said that there were not less than 100,000 square miles of the province still unexplored. Referring to the copper and nickel output he stated that there were 40,000,000 pounds of matte produced last year, the metal contents of which are computed at 8,373,560 pounds of fine copper and 5,567,690 pounds of fine nickel. At the selling price of matte at the works the value of the copper was \$268,080, and of the nickel \$514,220, being in all \$782,300. The industry employed 609 men, whose earnings were \$315,501. During the seven years 1892-8, the aggregate production of the Sudbury mines was 34,570,560 pounds of copper and 30,705,190 pounds of nickel. At the selling price at the Sudbury works the total value for the seven years would be \$4,596,865, and the amount of wages paid there in that time was \$1,929,894. An important addition was afterward made to the section of the bill granting a bonus to furnaces using charcoal made in Ontario. By the addition in question peat fuel is included with charcoal. To furnaces using peat fuel for smelting furnaces a bonus equal to that allowed to charcoal furnaces is given. This fuel is likely to be produced on a very large scale in Ontario, where there are many large areas of the necessary bog deposits. A process, described in these columns more than a year ago, has been perfected by which the peat can be compressed into extremely hard cylindrical forms rather larger than a lump of stove coal. The fuel has been tested in several works and by railways in the production of steam, and has been found a not unsatisfactory substitute for coal. Rights have been purchased and companies formed to develop deposits in various parts of Ontario.

A Tax on Machinery.

By an act passed at the last session of the Quebec Legislature, the city charter of Montreal is so amended as to enable the City Council, among other things, to tax machinery. Against the possession or use of this power the manufacturers of the city strongly protest. A meeting was called at which all the large manufacturers were present. Resolutions were passed expressing their sense on the subject, and organizing them into a permanent association to watch over municipal proceedings affecting their interests and for other purposes. After a lengthy preamble the first resolution proceeds as follows:

"Resolved, That this meeting do hereby protest against the imposition of said tax upon machinery, as being unjust and detrimental to the interests of the city of Montreal; and further resolve respectfully to petition the City Council that in the by-law necessary to be passed for the enforcement of this section care should be taken to make it clear that taxation shall not apply to machinery employed in any manufacturing industry."

Niagara Power.

In the last hours of the session of the Ontario Legislature, Premier Hardy introduced two resolutions respecting Niagara power. The first was for the purpose of authorizing the Government to cancel the monopoly clause of the agreement with the Canadian Niagara Power Company, and to renew that agreement, modified in regard to rental time, &c. The second was to empower the Government to enter into agreements with other companies for the use of the waters controlled from the Queen Victoria Park. In these resolutions, which were passed after some discussion, the Legislature ratifies in advance and blindly whatever contracts the Government enters into. The object in conveying

such extraordinary power to the Government was to enable it to deal with the parties and bring about developments at the Falls with the least possible delay. If the Legislature had retained its right to pronounce on the new agreement with the old company, or the agreement with its rival, a whole year would have been lost. Still, haste is not considered a sufficient excuse for the action of Mr. Hardy or the concurrence of the House in it.

C. A. C. J.

MANUFACTURING.

Iron and Steel.

Lawrence Furnace of the Lawrence Furnace Company, at Ironton, Ohio, after a shut down of five weeks for repairs, was blown in last week.

The Garden City Wire & Spring Company of Chicago, Ill., erected a wire rod train in 1898. The concern produce wire rods for their own consumption and for sale.

Emaus Furnace of the Reading Iron Company, Reading, Pa., is being prepared for blast and will be started up in about two weeks. The furnace has been idle for a long time.

The Pittsburgh Sheet Mfg. Company, with a capital stock of \$75,000, have been organized to manufacture fine iron and charcoal sheets and rolled sheets, with plant at Shousetown, on the Pittsburgh & Lake Erie Railroad, about 15 miles from Pittsburgh. The Board of Directors is composed of R. A. Wilson, Lewis W. Washington, A. C. Warne, T. L. Woodward, Irwin Marshall and E. E. Hicks. The officers are R. A. Wilson, president; Lewis W. Washington, vice-president; A. C. Warne, treasurer, and E. E. Hicks, secretary. The main building will be 250 x 100 feet in size, and the initial equipment will consist of one hot mill and one cold mill, which will be increased later to three and possibly four mills. The trade-mark of the new concern will be "Pittsburgh Best Bloom."

The Thomas Furnace Company of Niles, Ohio, have purchased from the Franklin Trust Company, representing the bondholders of the Duluth Iron & Steel Company, the blast furnace at West Duluth, Minn. It is a 75 x 16½ stack, rebuilt in 1893, and idle since that year. It is the purpose to ship coke by vessel from a lower lake port. The Thomas Furnace Company own the Atna mine on the Mesaba range, but it has not been worked for the past two years. The ores used will be from Minnesota ranges, including a considerable percentage of Mesaba ore. It is expected that the furnace will go in blast on Bessemer iron about June 1. The Thomas Furnace Company, it will be recalled, sold their Thomas Furnace, at Niles, Ohio, recently.

Zug & Co., Limited, operating the Sable Iron Works at Pittsburgh and manufacturers of high grade Sable iron bars, have received an order for a large lot of these bars for shipment to Australia. This concern are one of the oldest in Pittsburgh, the original works having been built in 1845. They have 42 single puddling furnaces, 11 heating furnaces, 6 trains of rolls and one three-high 20-inch muck train. They added a sheet mill in 1895, which contains six heating furnaces and two producer gas furnaces, four annealing furnaces, six stands of rolls and two pairs of squaring and one pair of doubling shears. An electric plant is connected with both mills, while the sheet mill is commanded by an electric crane. The product consists of special irons for use in forging and machine shop work and railway supplies, including heavy sizes of flats and squares made on universal rolls, high grade horseshoe bar, black plates for tinning, and steel and iron sheets for corrugating, galvanizing, stamping, expanded metal and electric work. The annual capacity is 22,500 gross tons of bar iron and 7000 tons of sheets. Chas. H. Zug is chairman, while Chas. H. Reid is secretary and treasurer. The Eastern selling agents are Horne Brothers of Boston, Mass.

The Michigan Iron & Steel Company, Muskegon, Mich., ran off their first heat March 29 and the plant is now in full operation. They are reported to have sold large quantities of open hearth steel in the form of ingots, which consumers at Chicago will work into finished product.

The railroad property of the Illinois Steel Company, heretofore operated under the style of the Chicago, Lake Shore & Eastern Railway Company, has passed under the management of the Elgin, Joliet & Eastern Railway Company, one of the constituent parts of the Federal Steel Company.

The Western Iron & Steel Company, Lakeview, Wash., manufacturers of merchant bar iron, are enlarging their capacity by the addition of busheling furnaces to enable them to use small scrap.

The Inland Iron & Forge Company, East Chicago, Ind., whose property shortly passes under the control of the Republic Iron & Steel Company, have latterly been making a large output of bar iron. Their product for March was over 5000 tons, although their annual capacity is put in the American Iron and Steel Association's directory at 40,000 tons.

The March production of the Joliet works of the Illinois Steel Company established a new record for that plant? The converting mill during March turned out 50,547 tons of steel, beating the world's record for two-vessel plants by 2000 tons.

The billet mill turned out 42,400 tons, an average of 793 tons each turn. The best previous record was 40,261 tons, made here in January last. The rod mill made 16,240 tons finished rods, an average of 312 tons every turn. The best previous record was 15,600 tons, made here in January last.

W. H. Hayes & Co., Mason Building, Boston, agents for the Cambria Steel Company, have moved into larger quarters in the same building. They have recently arranged to represent the Rapp system of fire proofing, which department is now in charge of P. R. Bailey.

The Penn Iron Company, Limited, of Lancaster, Pa., have notified their puddlers of an advance in wages of 25 cents a ton. Other labor in this plant has also been advanced.

The Globe Iron Company, Jackson, Ohio, are going to remodel their Fulton Furnace and make it a modern stack. They will purchase new engines, boilers, fire brick stoves, and will increase the size of the furnace from 50 x 13½ to 85 x 18 feet. The new equipment is now being ordered, and David Lamond, engineer and contractor, Ferguson Building, Pittsburgh, has been appointed consulting engineer. Mr. Lamond has also secured a contract for a plant of two C. H. Foote fire brick stoves, 18 x 75 feet, which will be added to the present stack. When the remodeled furnace is ready a third Foote stove of the same size will be added. Mr. Lamond has also received a contract from the Star Furnace Company, operating Star Furnace at Jackson, Ohio, for two Foote stoves, 16 x 65 feet. These will be added to the present furnace, and when it is enlarged, which will be done in a year or so, a third Foote stove will be added.

The Chester Rolling Mill Company, who will build a sheet mill at Chester, W. Va., opposite Steubenville, Ohio, have placed a contract with the Lloyd Booth Company of Youngstown, Ohio, for six stands of finishing and three stands of roughing rolls. The Fort Pitt Bridge Company of Washington, Pa., will erect the main building, which will be 300 x 130 feet in size. It will have a main span of 70 feet, commanded by a 30-ton electric traveling crane.

The Potomac Steel Company is the name adopted for the new concern who have recently leased the Cumberland Rolling Mill, at Cumberland, Md. At present repairs are being made to the plant, and it is expected to be rolling light section rails within 60 days from date. This concern advise us they will be glad to have catalogues, price-lists, &c., from dealers and manufacturers of material and supplies such as are used in mills. T. S. B. Wood is general superintendent.

Machinery.

The Mercer Machine & Steel Casting Company have been organized, at Mercer, Pa., and are composed of G. S. and W. W. Humes and G. Z. Sheriff. The main building will be two stories high and all buildings will be constructed of iron and steel.

The Fischer Foundry & Machine Company of the South Side, Pittsburgh, Pa., have received a contract from the Mesta Machine Company of Pittsburgh for a 300 horse-power engine, to be installed in the new plant now under erection by that concern at Homestead. This engine will be coupled direct to 300-kilowatt Westinghouse generators and will be duplicated at an early date.

The Turner Engineering Company, Bucyrus, Ohio, are furnishing the Turner water tube boiler, 250 horse-power, for the Findlay (Ohio) Street Railway, two 200 horse-power for the Central Traction Company and three 225 horse-power for the Indianapolis Ice & Cold Storage Company.

The Shaw Electric Crane Company, Muskegon, Mich., are about to erect an important addition to their main building and also to improve their power plant, which will materially increase their capacity. A local paper states that when the extension of the main building is completed it will be the largest building in the city.

The Pittsburgh Steel Casting Company, Limited, of Pittsburgh, referred to on page 21 of *The Iron Age* of March 30, have decided to change their corporate name to the Union Steel Casting Company, Incorporated. The company have a paid up capital of \$70,000 and will begin work on the erection of their plant as soon as possible. The Shiffler Bridge Company of Pittsburgh have the contract for the buildings, while the Morgan Engineering Works, Alliance, Ohio, will install two cranes. Contracts for additional equipments will be placed in a short time.

The Mankato Mfg. Company, Mankato, Minn., will build the patent Tidland grading and ditching machine.

F. E. Thomas will build a foundry and machine shop at Cherryvale, Kan. The main building will be 75 x 250 feet.

The Dodge Mfg. Company, Chicago branch, succeeding the Rice Machinery Company, 166 to 174 South Clinton street, Chicago, are enjoying an exceedingly good trade, and have not found that the continued and decided advance in prices of raw materials has affected or decreased their business in any way.

The M. C. Bullock Mfg. Company, Chicago, report the business outlook greatly improved. Prices are rising, but this does not seem to cause customers to defer placing contracts; in fact, the impression seems to be that prices are going still higher. Within the next few days this company will ship a pontoon engine and three ventilating fans to Japan, a first motion 24 x 48 hoist and a ventilator fan to British Columbia, an air com-

pressor and a high speed Willans engine to Detroit city lighting plant, also a high speed Willans engine to Colorado. Within the past ten days they have shipped one diamond drill to England, one to Kentucky, one to the Black Hills, one to Mexico. They are boring two deep prospecting holes in Mexico, two in Illinois and 18 in Georgia. As to their Monarch rock drill, their agent in New Zealand writes thus: "You will be pleased to hear that your drills obtained the first award at the New Zealand Mining and Engineering Exposition, just closed."

The Bass Foundry & Machine Company, Fort Wayne, Ind., have closed contracts to furnish two Corliss engines of 300 horsepower each, to be delivered to Eastern parties in September. These works are well supplied with orders, enough to keep them busy all summer.

The Mesta Machine Company of Pittsburgh, through Edward M. Hagar, their Chicago agent, have received an order for a large No. 5 bar shear to cut 5-inch round cold steel. This shear will have a 60 horse-power engine attached and will weigh 100,000 pounds complete. Other orders for large machines have also been received. The company are pushing work on their large new plant at Homestead and expect to have the ingot mold steel department in operation by July 1 or earlier.

The Lincoln Foundry Company of Pittsburgh have made application for a charter of incorporation. The incorporators are Wm. L. Abbott, Otis H. Childs, James H. Lockhart, F. A. Campbell and G. G. Smith. This concern will take over the interests of the Lincoln Foundry Company, a limited partnership at Pittsburgh.

The offices of the Stilwell-Bierce & Smith-Valle Company of Dayton, Ohio, have been established at 203 Smith Block, Sixth street and Liberty avenue, Pittsburgh, in charge of Edward F. Austin. The concern are manufacturers of Stilwell's patent improved lime extracting heater and filter.

The Case Mfg. Company, Columbus, Ohio, manufacturers of cranes and machinery, have recently shipped an electric crane to Russia.

William E. Quimby, New York City, has been incorporated, with a capital of \$100,000, all paid in, for the manufacture of pumps, motors, &c., by Wm. E. Quimby, 31 Oakwood avenue, Orange, N. J., and others.

The Muncie Foundry & Machine Company of Muncie, Ind., were incorporated March 30, with a capital stock of \$25,000, by Arthur F. Patterson, George F. McCulloch, Will M. Patterson, William C. Denny and William C. Sampson.

Bridges.

It is reported that Arthur Seaton of Mercer, Pa., representing a syndicate of Pittsburgh and New Castle capitalists, has bought a large farm of about 108 acres west of New Castle, for the purpose of building a large bridge works.

The Philadelphia Bridge Works, C. R. Baird & Co., Pottstown, Pa., which have been idle for a long time, have been sold to Philadelphia and Baltimore capitalists and will be put in operation at an early date. This concern went into the hands of receivers on February 25, 1893, and the plant has been idle nearly all of the time since.

C. R. Baird & Co. of Philadelphia, Pa., have sold the entire bridge works plant at Pottstown to a firm of Baltimore manufacturing capitalists, whose names at present do not appear in the deal. It is learned on good authority that the works will be put in operation at once, and considerable additions will be made to the capacity of the plant.

A movement is on foot in Portland, Maine, to bring about the erection of a new bridge from the foot of State street to the Portland Bridge, to take the place of the old Clark street bridge. The new bridge will not cost more than \$125,000, and of this amount the Boston & Maine Railroad are said to be willing to pay \$50,000.

The Schiffler Bridge Company of Pittsburgh, Pa., have received so many large contracts for bridges and structural steel work within the past few weeks that their force of draftsmen have been found totally inadequate to do the work. It is the intention of the Shiffler Company to erect a new plant at Homestead adjoining the plant of the Mesta Machine Company, as soon as they can find time after the completion of the many contracts on hand. Orders are now on hand for work which will require five or six months to fill the contracts.

Attorney-General Griggs has instructed William E. Bundy, United States Attorney at Cincinnati, Ohio, to institute proceedings to prevent the reconstruction of the Baltimore & Ohio Railroad Company's bridge across the Ohio River, between Benwood and Bellaire, Ohio. This action is taken upon information from the Secretary of War that the bridge is an obstruction to the free navigation of the river.

It is probable that two new bridges will be built across the Alabama Tidal Canal, connecting Oakland and Alameda, Cal. One to be built at Fruitvale avenue will cost about \$100,000, and the other, a railroad bridge, will cost about \$80,000.

A bridge will be built across the Ocmulgee River, at Macon, Ga., and will probably cost about \$50,000.

A petition is being circulated at Charlotte, N. Y., for a bridge to be built across the Genesee River, connecting the towns of Greece and Irondequoit.

The Boston & Maine Railroad will rebuild the bridge across the Scarborough River, between Pine Point and Scarborough Beach stations, this spring. It is understood that the railroad officials contemplate building a new iron bridge across the Saco River on the Eastern division of this road in Biddeford, Maine.

The Board of Commissioners of Brooklyn, N. Y., adopted resolutions authorizing the Commissioner of Bridges to make contracts for erecting bridges over the Newtown Creek at Vernon and Grand avenues.

Hardware.

The Ornamental Iron Works, Washington, D. C., have recently completed all the structural and ornamental iron work required in the following new buildings at the capital: The Columbian Lawn Building, the Columbian University, the Franciscan Monastery and the Grafton Hotel. They also made the fence gateway for the heroes of the "Maine" at Key West, Fla.

The J. D. Warren Mfg. Company, Masonic Temple, Chicago, report growing interest in the Warren hardware shelving. In the ten days ending March 29 numerous large orders were received from hardware merchants in the Northwest, others came from Eastern merchants, and one was received for a very choice outfit to be shipped to Belgium.

New Winona Mfg Company, A. B. & H. S. Youmans, proprietors, Winona, Minn., announce that they have purchased from the assignees of the Winona Mfg. Company the complete plant, tools and machinery, together with all the patterns, patents, trade-marks and good will of the business, and will operate the same under the above name. They will continue the manufacture of the Diamond line of feed mills, corn shellers, horse powers, &c., and announce their purpose to use the best material and skilled workmanship. They refer to their situation in the heart of the Northwest, with five competing lines of railroad, as putting them in position to guarantee prompt shipments and low freight rates.

A. C. Williams, manufacturer of house furnishing specialties and hardware, Ravenna, Ohio, has let the contract for a 212-foot addition to his finishing department; also for additions to other buildings, increasing capacity of the works 40 per cent. Mr. Williams advises us that his concern has lost but one day's work in five years, and reports for this season larger business than ever.

The West Duluth Malleable Iron Works, West Duluth, Minn., are manufacturing a number of specialties, among them being malleable fence posts and a patent flat iron heated by gasoline.

The American Shovel and Stamping Company, newly incorporated, with Robert T. J. Martin as president and office in the Home Insurance Building, Chicago, have purchased the equipment of the shovel factory at Chicago Heights and are now seeking a location to establish a plant.

The United States Steel Lock Company, Lyons, Iowa, manufacturers of the Warner steel locks, have been compelled by the large increase in their business, and the steady demand for satin finished goods in antique brass and copper, to add a new building to their plant, in which they have installed a complete outfit under the Tilghman patents for sand blasting. They are now in a position to promptly handle all orders in these finishes.

Dillon-Griswold Wire Company, Sterling, Ill., are in a position to furnish a full line of wire nails, barb wire, woven fence, staples, bale ties, market and telephone wires, also wires straightened and cut to lengths. They have been adding a good deal of machinery to their plant, and will shortly be in the market as sellers of all sizes and quantities of stone, fine and flat wires. Their rod mill will be in operation within the next 30 days. In this mill they will roll steel, iron and copper rods, all sizes from 1 1/4 inch to No. 6 gauge, special attention being given to rolling copper rods.

The Richmond Cedar Works, Richmond, Va., had their hoisting apparatus carried away by the ice gorge in the James River some time since. With the disturbance in the operation of the lumber mills of the South, owing to the continued bad weather, they have been unable to obtain the material to rebuild until recently. The company state that the volume of business during 1898 was satisfactory, but prices generally obtained were not as remunerative as they should have been. They refer to the prospect for the present year as encouraging if not imperilled by too rapid advances in raw material. They report a good demand for their electrically welded wire hoop tubs, pails, &c.

The Payson Mfg. Company, Chicago, Ill., have disposed of their entire right and interest in the Pendulum parlor door hangers to the Dearborn Hardware Works, Oak Park, Ill., who are now filling orders for these goods. The Dearborn Hardware Works state that they have excellent facilities for the manufacture of these hangers, and will endeavor to keep up the standard of workmanship set by the Payson Company.

Metallic Basket Company, Rochester, N. Y., are now rushing an order for 3000 steel coaling baskets for the use of Admiral Dewey's fleet in the Philippines. The order was received in March from the Navy Department. As the tendency aboard ship at present is to displace wood with metal, the company feel confident that Admiral Dewey, among other good things which he has done, has opened the door for a large trade between the company and Uncle Sam. The baskets in question are of galvanized steel, corrugated, the corrugations extending from the

top to the bottom of the basket and around the curved edge of the bottom, giving the basket stiffness and strength without increasing its weight to a corresponding extent. The basket is water tight, and accordingly serves the purpose of basket and bucket in many instances. With rope handles and reinforced bottoms the basket, we are advised, is coming into increasing use for the handling of coal.

Miscellaneous.

The Bay State Metal Works and Riverside Boiler Works, Cambridge, Mass., were totally burned on April 7, together with the wagon spring works of J. C. Buff. The total loss is placed at about \$75,000.

The property of the Graff Stove Company of Sharon, Pa., was offered at public sale the second time last week. The price offered was \$4400, by the Aschman Steel Casting Company of Sharon, Pa. The bid was rejected and the sale adjourned until Thursday, April 27.

The Frictionless Metal Company, Richmond, Va., report having had a larger trade since the beginning of the year than in any similar period during the 12 years of their existence. They have added four traveling men to their force and expect to make further additions as suitable men can be secured.

On April 6 fire partly destroyed the Dominion Metal Works, Montreal, Canada. The loss is estimated at \$60,000, well insured. The street railway service was paralyzed as a result of cut wires, nearly all the lines converging near the location of the fire.

The Shiffler Bridge Company, through their New York office, have recently secured the following contracts: A steel dam for export to Venezuela; a steel building for the Guggenheim Smelting Company, to be erected at their Monterey works, Mexico; a church roof for export to South America, for W. R. Grace & Co.; the construction of the new paper mill plant for the West Virginia Pulp & Paper Company, Caldwell, W. Va., comprising in all 18 buildings; the construction of the new plant for the Great Northern Paper Company, Millinockett, Maine, comprising about 2600 tons of structural steel; the new agate ware factory for the Lalanc & Grosjean Mfg. Company, Woodhaven, N. Y., a steel building 60 x 400 feet.

The Johnson Iron Works, New Orleans, La., are about to establish a plant for building steel boats. They have already secured orders for several boats, two of them stern wheel tow boats.

The Shickle, Harrison & Howard Iron Company, St. Louis, have contracted to remove their cast iron pipe foundry and steel casting plant to a location on the Belt Line Railway, East St. Louis, Ill. The company secure two blocks of land, and agree to have a building costing not less than \$100,000 erected within a year and to have not less than 350 men employed.

The American Steel Scraper Company of Sidney, Ohio, have been adding some special machinery to their plant. This machinery, in connection with their mammoth drawing press, will enable them to make all sizes of pressed steel shapes. They purpose to enlarge their plant and manufacture pressed steel shapes extensively in connection with their regular line of scrapers, wheelbarrows, &c.

The Enamel Iron Company, Beaver Falls, Pa., manufacturers of advertising signs of all kinds, are making an addition to their plant which will give them about 1600 feet more of floor space, and an engine room is being added. The concern advise us they have enough orders ahead to run them until June.

The William Skinner & Son Shipbuilding and Dry Dock Company of Baltimore, Md., were incorporated last week with a capital stock of \$300,000, divided into 3000 shares at the par value of \$100 each. The incorporators are Henry Williams, Decatur H. Miller, Jr., Robert Ramsay, George R. Heffner and George Weems Williams, who are also constituted a board of directors for the first year. The corporation propose to do a general shipbuilding business.

The Kraushaar Lamp & Reflector Company, St. Louis, Mo., whose plant was recently damaged by fire, are rapidly recovering from the consequent inconvenience. They report a fine trade and especially a good round order for car trimmings from one of the large street car building companies of St. Louis.

Articles of incorporation of the Sargent Automatic Railway Signal Company, with a capital of \$2,000,000, have been filed at Trenton, N. J. The company are authorized to manufacture and deal in railroad semaphore signals. The incorporators are James Sargent, John D. MacMaster, P. L. Koscialowski and E. L. Fenner, all of Rochester, N. Y.

Merchant & Co., Incorporated, of Philadelphia are meeting with an extraordinary demand for their Star ventilators and are increasing their factory space fully 50 per cent. The War Department has ordered 587 Star ventilators 24-inch diameter, and 199 of 14-inch diameter, for use on the officers' quarters and barracks at Havana and Matanzas, Cuba. In addition to this between 500 and 600 have been ordered for use in Porto Rico, Savannah, Fortress Monroe, Fort Hamilton, Fort Hancock and other Government stations.

Among recently licensed corporations in Illinois are the Spring Valley Furnace Company, Chicago; capital, \$20,000; mining, manufacturing; incorporators, W. O. Lindley, S. L. Adams, J. L. Fogle.

The Iron and Metal Trades.

A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type.
Declines in Italics.

Apr. 12, Apr. 5, Mch. 15, Apr. 13,
1899. 1899. 1899. 1898.

PIG IRON:

Foundry Pig, No. 2, Standard, Philadelphia.....	\$15.75	\$16.00	\$14.75	\$10.50
Foundry Pig, No. 2, Southern, Cincinnati.....	14.50	14.50	14.00	9.00
Foundry Pig, No. 2, Local, Chicago.....	15.00	15.50	14.50	11.00
Bessemer Pig, Pittsburgh.....	15.00	15.15	15.65	10.40
Gray Forge, Pittsburgh.....	14.50	14.15	13.50	9.25
Lake Superior Charcoal, Chicago.....	17.00	17.00	15.00	11.50

BILLETS, RAILS, ETC.:

Steel Billets, Pittsburgh.....	25.50	25.00	25.50	15.00
Steel Billets, Philadelphia.....	27.50	26.50	26.00	17.25
Steel Billets, Chicago.....	25.50	25.50	24.00	17.50
Wire Rods, Pittsburgh.....	31.50	31.00	31.00	21.75
Steel Rails, Heavy, Eastern Mill.....	26.00	26.00	26.00	18.00
Spikes, Tidewater.....	1.70	1.70	1.65	1.40
Splice Bars, Tidewater.....	1.35	1.35	1.30	1.10

OLD MATERIAL:

O. Steel Rails, Chicago.....	11.75	11.75	9.50	8.00
O. Steel Rails, Philadelphia.....	15.00	16.00	14.00	10.25
O. Iron Rails, Chicago.....	18.00	17.00	16.00	12.00
O. Iron Rails, Philadelphia.....	18.00	17.50	17.00	12.50
O. Car Wheels, Chicago.....	15.00	15.00	15.00	.....
O. Car Wheels, Philadelphia.....	15.00	15.00	14.50	10.25
Heavy Steel Scrap, Chicago.....	12.00	11.25	9.50	8.00

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia.....	1.50	1.50	1.50	1.05
Common Iron Bars, Youngstown.....	1.50	1.50	1.35	0.95
Steel Bars, Tidewater.....	1.50	1.50	1.45	1.10
Steel Bars, Pittsburgh.....	1.50	1.50	1.35	0.85
Tank Plates, Tidewater.....	2.15	2.15	1.90	1.10
Tank Plates, Pittsburgh.....	2.00	2.00	1.75	1.00
Beams, Tidewater.....	1.63	1.63	1.55	1.30
Beams, Pittsburgh.....	1.50	1.50	1.40	1.15
Angles, Tidewater.....	1.60	1.60	1.45	1.15
Angles, Pittsburgh.....	1.50	1.50	1.35	1.05
Skelp, Grooved Iron, Pittsburgh.....	1.60	1.50	1.40	1.05
Skelp, Sheared Iron, Pittsburgh.....	1.90	1.80	1.50	1.10
Sheets, No. 27, Chicago.....	2.70	2.70	2.45	2.05
Sheets, No. 27, Pittsburgh.....	2.50	2.45	2.35	1.95
Barb Wire, Galv., f.o.b. Pittsburgh.....	2.50	2.50	2.50	1.85
Wire Nails, f.o.b. Pittsburgh.....	2.00	2.00	2.00	1.30
Cut Nails, Mill.....	1.75	1.75	1.50	1.10

METALS:

Copper, New York.....	18.50	18.00	17.75	12.00
Spelter, St. Louis.....	6.50	6.10	6.00	4.00
Lead, New York.....	4.27½	4.30	4.45	3.62½
Lead, St. Louis.....	4.12½	4.15	4.25	3.57½
Tin, New York.....	24.50	24.35	23.80	14.40
Antimony, Hallett, New York.....	10.00	10.00	10.00	7.75
Nickel, New York.....	38.00	38.00	38.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York.....	4.05	4.25	4.10	2.90

Chicago (By Telegraph.)

Office of The Iron Age, 805 Fisher Building,
CHICAGO, April 12, 1899.

The only change in the situation is a little further stiffening in prices. This is particularly the case in Steel Rails, which have been marked up another \$1 per ton. Other items are very firm, but for the time being business is not so active. This is partly due to approaching combinations in some lines and in others to a disposition on the part of consumers to await developments in the hope that they may be able to place contracts at slightly lower prices. The National Steel Company, whose headquarters are now in this city, are taking orders for Steel Billets and Sheet Bars for delivery in the last half of the year. They expect to be able to take care of all the consuming interests which have heretofore been supplied by the companies now composing the National Steel Company, but believe that from the present outlook their producing capacity will be quite fully employed.

Pig Iron.—Sales agents report the lightest volume of business in a long time. Even the small lot trade is not active. The producers say that the lull in business is welcome, and that they would be pleased if it should continue for so long as 60 days. This would give them time to catch up on contracts and enable them to more satisfactorily supply their trade. They have no fear that business will seriously decline and that prices will be reduced. Many contracts will expire July 1 or earlier, and buyers must therefore come in before that time. From the present outlook, Iron will be scarce for the last half of the year, as the consumption is beyond all precedent. We quote for cash as follows:

Lake Superior Charcoal.....	\$17.00 to \$18.00
Local Coke Foundry, No. 1.....	15.50 to 16.00
Local Coke Foundry, No. 2.....	15.00 to 15.50
Local Coke Foundry, No. 3.....	14.50 to 15.00
Local Scotch, No. 1.....	16.00 to 16.50
Ohio Strong Softeners, No. 1.....	17.00 to 18.00
Southern Silvery.....	16.00 to 16.25
Southern Coke, No. 1.....	16.00 to 16.25
Southern Coke, No. 2.....	15.50 to 15.75
Southern Coke, No. 3.....	15.00 to 15.25

Southern Coke, No. 1 Soft.....	15.75 to 16.00
Southern Coke, No. 2 Soft.....	15.00 to 15.25
Foundry Forge.....	14.50 to 14.75
Gray Forge and Mottled.....	14.50 to 14.75
Southern Charcoal Softeners.....	16.00 to 16.50
Alabama and Georgia Car Wheel.....	18.00 to 19.00
Malleable Bessemer.....	to 16.00
Standard Bessemer.....	to 16.00
Spiegel, 20 per cent.....	to 30.00
Jackson County Silvery, according to Silico.....	18.00 to 19.00

Bars.—Some sales of Bar Iron have been made, but transactions were not numerous. Many mills which will enter the consolidation are not quoting, while a few are making efforts to take care of their regular customers. The large consumers, knowing the situation, are stated to be deferring their inquiries until after the new Republic Iron & Steel Company are ready for business. Mill shipments of Common Iron are still quoted at 1.55c. to 1.60c., Chicago, on the limited trade current. Soft Steel Bars continue in good demand, with nearby mills quoting 1.60c. to 1.65c., Chicago, while Pittsburgh and Ohio mills are holding to 1.70c. Jobbers quote small lots from stock at 1.70c. to 1.75c., full extras, for either Iron or Steel, and 3.20c. to 3.25c. for Norway and Swedish Iron.

Car Material.—The orders for cars let in this vicinity last week only aggregated 800 as far as known. Good inquiries for all kinds of material, however, are still being received.

Structural Material.—About 6000 tons of bridge work have been closed in the past week in contracts of 1000 tons and larger quantities. No building contracts of any importance have come to light. Small business for both bridges and buildings is quite active. Mill shipments are quoted as follows, Chicago delivery; Beams, 18 inches and over, also Angles under 3 and over 6 inches, 1.75c. to 1.85c.; Beams and Channels, 15 inches and under, and Angles 3 to 6 inches, 1.65c. to 1.75c.; Tees, 1.70c. to 1.80c.; Universal Plates, 2.15c. to 2.25c. Store prices are from ¼c. to ½c. above these prices.

Plates.—The largest Pittsburgh makers are positively refusing to take orders for Plates alone, but only take them in connection with other material. They say they are practically filled up for the remainder of the year. The local mills are frequently turning down orders and are only accepting for such deliveries as will completely suit their convenience. Jobbers are securing up to 2.50c. for Tank Steel from store. Quotations vary considerably, as more reasonable prices can be secured for delivery in the last half of the year, but for fairly early shipment about the following prices would have to be paid in mill shipments, Chicago delivery: Tank Steel, 2.15c. to 2.25c.; Flange, 2.25c. to 2.35c.; Marine, 2.50c. to 2.60c.; Common Fire Box, 3c.; Best Fire Box, 3.50c. to 4.50c.

Merchant Pipe.—The demand has not been so active, but the general condition of business is still satisfactory considering the conditions. Merchant Pipe has again advanced and is now quoted in carload lots at four 10's and 5 off. Merchant Boiler Tubes are quoted in small lots, 1¼ to 1½ inch, inclusive, 40 per cent. off for Iron and 45 per cent. off for Steel; 2 to 2¼ inch, inclusive, 52½ per cent. off for Iron and 57½ per cent. off for Steel; 3-inch and larger, 60 per cent. off for Iron and 62½ per cent. off for Steel, with an extra of 5 per cent. for carload lots.

Sheets.—The Sheet mills can no longer claim that the scarcity of Sheets for delivery during the summer month is caused by the Steel makers refusing to take orders for Sheet Bars for delivery after July 1, as such orders can now be easily placed. The refusal of many Sheet mills to take business is therefore due to some other reason, which is probably the approaching consolidation. Prices on mill shipments are continued at 2.70c. to 2.80c., Chicago, for No. 27 Black Sheets, while Galvanized Sheets are very firm at 70 and 10 to 75 per cent. off at mill. Some business has been done at these prices, but it is not believed that the quantity has been large. Jobbers quote small lots from stock at 2.90c. for No. 27 Black, 3c. to 3.10c. for Wood's Smooth and 70 and 10 off for Galvanized.

Merchant Steel.—No new developments have occurred in this line. The mills are crowded with work and more desirous of small business than large tonnage. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.40c. to 2.50c.; Smooth Finished Tire, 2.20c. to 2.30c.; Open Hearth Spring Steel, 2.40c. to 2.50c., base; Toe Calk, 2.40c. to 2.50c., base; Ordinary Tool Steel, 5.50c. to 7c.; Specials, 10c. upward. Jobbers are quoting small lots from stock at 2.70c. for Tire, 2.90c. for Machinery, 2.90c. for Spring, and 2.90c. for Toe Calk, full extras.

Billets and Rods.—No transactions are reported in either Billets or Wire Rods. Nominal quotations are continued at \$25.50 to \$26 for Bessemer Billets and \$32.50 for Wire Rods.

Rails and Track Supplies.—Another advance of \$1 per ton has been made on Rails of Standard Sections. The minimum is now \$26 for largest lots, while small lots command \$27 to \$28. Light Rails are held at \$25 to \$28, according to section. Some business has been done in both Light and Standard Sections, but in moderate quantities only. Track Supplies are quoted as follows: Splice Bars, 1.35c. to 1.50c.; Spikes, 2c. to 2.10c.; Track Bolts, With Hexagon Nuts, 2.60c. to 2.70c.; Square Nuts, 2.40c. to 2.50c.; Steel Links and Pins, 2c.; Iron Links and Pins, 1.80c. to 1.85c.

Old Material.—A somewhat better demand is reported by dealers. Transactions cover almost everything in the line of Scrap material. Some of the rolling mills have been obliged to purchase additional stock to cover orders which must be completed before the consolidation is accomplished, and a good movement has also taken place among Scrap consumers outside of the combination. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, \$18 to \$18.50; Old Steel Rails, mixed lengths, \$11.75 to \$12; Selected Long Lengths, \$13 to \$13.50; Relaying Rails, \$19 to \$20; Old Car Wheels, \$15; Heavy Melting Steel Scrap, \$11.25 to \$11.75; Mixed Steel, \$9. The following selling prices are per net ton: No. 1 Railroad Wrought, \$16 to \$16.50; Dealers' Forge, \$12.50; Fish Plates, \$15; No. 1 Mill, \$9 to \$10; Heavy Cast, \$12 to \$12.25; Stove Plates, \$7.50 to \$8; Iron Car Axles, \$17; Horseshoes, \$11.50; Cast Borings, \$6 to \$6.50; Steel Axle Turnings, \$8.75; Iron Axle Turnings, \$9.25; Machine Shop Turnings, \$7.50 to \$7.75.

Metals.—Lake Superior Copper has advanced to 19.25c. for carload lots, while Western Copper is quoted at 17.62½c. Spelter is firmer, being held at 6.20c. to 6.25c., while Pig Lead is quiet and a little lower, being quoted at 4.17½c. Consumers of Lead are awaiting the completion of the consolidation, which is now to be effected in a few days.

Tin Plate.—It is intimated that the manufacturers are considering another advance in price.

The Palmer Iron & Steel Company have secured possession of the rolling mill at Muncie, Ind., formerly known as the Darnell Mill. They are making important additions to the equipment. It was originally built to make Muck Bar only, but the new owners are putting in two finishing trains of rolls, an 18 and a 10 inch train, and will have their product on the market in a week or two. They have six double puddling furnaces and six busheling furnaces, and expect to turn out 125 to 150 tons of Bar Iron daily. The mills are so arranged that a pile of 1000 pounds can be worked to a finish on the 10-inch train. The company will sell their own product from the main office in the Gaff Building, Chicago. John H. Palmer is president and John D. Briggs is manager.

The Minerva Pig Iron Company, to be incorporated under the laws of Wisconsin, will lease Minerva Furnace at Milwaukee for the manufacture of Foundry Iron. The officers will be: W. Aubrey Thomas of the Thomas Furnace Company, Niles, Ohio, president, and S. Frank Eagle vice-president and manager, with offices in Milwaukee.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building,
PITTSBURGH, April 12, 1899.

(By Telegraph.)

Pig Iron.—There is absolutely nothing doing in Bessemer Pig. The nominal price is \$14.50, Valley furnace, but there have been no sales for a week or more. A few little lots of Iron are reported as being offered by dealers at about \$14.25, Valley, but the tonnage is so small that it does not cut any figure. No large consumers are inquiring for Iron. In Gray Forge the market is strong and little lots have been sold in the past week at \$14.50, Pittsburgh. Foundry Irons are in fair demand, but not as active as they were some time ago. We quote Bessemer Pig, \$14.50; Gray Forge, \$13.85, Valley furnace; No. 2 Foundry, \$15 to \$15.25; Gray Forge, \$14.50; Bessemer, \$15 to \$15.15, all f.o.b. Pittsburgh.

Billets.—The market is very dull, no sales of any kind having been made for some days. The mills do not seem anxious to take on business and are declining in most cases to quote. On the other hand, it is not believed much business could be done in Steel at present prices, as consumers insist that present values cannot be maintained. We quote Billets at \$25.50 to \$25.75, delivered in Pittsburgh district.

Muck Bar.—Several sales of Muck Bars have been made in this market in the last couple of days on the basis of \$25.75, delivered at buyer's mill, in Pittsburgh district.

(By Mail.)

The Iron and Steel trade is in practically the same condition as noted last week. There is a lull in demand, and some buyers have evidently made up their minds to buy from hand to mouth in preference to making a contract for second half of the year at present prices. Tonnage for second half may be as large as for the first six months, but prices are much higher, and it will take a good deal of faith on the part of consumers to cause them to go in and cover for beyond July at present prices. With Billets at \$25 it is likely the top has been reached. With Bessemer Pig at \$15 a spread of \$10 on Steel is regarded as excessive, and cannot be maintained except by an extraordinary demand. In Finished Material the volume of business is heavy, but mills are running largely on old contracts. However, there is a good general demand and it is evident that the mills have all they can do for the next three or four months, and perhaps longer. The situation in the Ore regions is being watched closely, and it is conceded that a stoppage of work for any length of time would bring about a famine in Pig that would send prices for Steel and Finished Material upward at a very fast rate. The Ore men have certainly been unfortunate in having sold their output without being able to take advantage of the high prices on everything else. The whole situation is good, but demand is not as urgent as it was three or four weeks ago. Prices, however, seem to be fully as strong.

Ferromanganese.—The high price of Ferro has caused several of the larger mills to look about with the view of supplying their own needs, and probably becoming sellers in the open market. We understand that a couple of large consumers are getting ready to make Ferro. The local producer quotes at \$75 in large lots.

Structural Material.—Some large contracts for Structural Material have recently been placed, most of them before the advance of \$2 a ton was made. We understand that one of these contracts involves over 5000 tons and was taken by a local mill. A great deal of work is in sight, including a large amount of bridge work. We quote: Beams and Channels, 15-inch and under, 1.50c.; 18, 20 and 24 inch, 1.60c.; Zees and Angles, 1.50c.; Tees, 1.55c.; Universal and Sheared Plates, 2c.

Plates.—Demand continues heavy and prices have been shoved up another notch. On a recent order a consumer paid 2.10c. for Sheared Plates, delivery within three or four weeks. Where delivery is optional with the mills about 2c. is being named. The leading local mill is, we are advised, refusing to quote, being filled up completely to July 1 or longer. We quote: Tank Plate, ¼-inch and heavier, 2c. to 2.10c., depending on delivery; Shell, 2.10c. to 2.20c.; Flange, 2.25c. to 2.35c.; Marine, 2.40c. to 2.50c.; Fire Box, ordinary quality, 2.50c.; best quality, 3.25c.

Bars.—Prices on Steel Bars have again advanced and the minimum to-day is 1.60c., half extras, at maker's mill. Demand is heavy and the mills are so well sold up that in some cases premiums have been paid for early delivery. It is not unlikely the price of Steel Bars will go still higher. One local mill is reported to be quoting at 1.75c. On Iron Bars interest is centered on the formation of the Republic Iron & Steel Company. This concern are about ready to take over some 34 Bar Iron mills in the West and South, and in the meantime the mills are entering as few orders as possible. It is intimated that the price of Iron Bars will be fixed by the new company at about 1.50c., Youngstown. The Valley mills are quoting 1.50c. to 1.55c., the freight to Pittsburgh being 4½c. It is reported that the stock of The Republic Iron & Steel Company, \$25,000,000 preferred and \$32,000,000 common, has already been oversubscribed. We quote Steel Bars at 1.60c., at mill, Pittsburgh, half extras, and Iron Bars at 1.50c. to 1.55c., at mill, half extras.

Sheets.—There is a large inquiry for Sheets for delivery up to July and a good many buyers are asking prices for last half of the year. The mills, however, do not seem disposed to sell for second half, owing to uncertainty about prices of Sheet Bars. We have referred in this report from time to time of the move to take over the Sheet mills into one company. Reliable information indicates that the consolidation of the Sheet mills, as a whole, will not be consummated. It is possible that an arrangement of some kind may be made with three or four of the leading mills, but this is all that will be done. Serious obstacles arose, among them the refusal of a leading mill to go in, and the project has practically been dropped. We quote No. 27 Black Sheets, smooth

finish, at 2.50c. to 2.55c.; No. 28, 2.60c. to 2.65c. The mills rolling Galvanized Sheets are sold up to July or longer and prompt deliveries cannot be had. Prices are very strong and we quote at 75 per cent. off, with 15c. freight allowance, for large lots. For small lots 70 and 10 per cent. is being quoted.

Iron and Steel Skelp.—There is a very heavy demand for Skelp and prices have again advanced fully \$2 a ton. Grooved Steel Skelp, for delivery in the next month or two, has sold at close to 1.70c., delivered in Pittsburgh district. For Sheared Steel Skelp 2c. and higher has been paid. Sheared Iron has sold at very close to 2c. We quote Grooved Steel Skelp, 1.65c. to 1.70c.; Sheared Steel Skelp, 2c. to 2.10c.; Grooved Iron Skelp, 1.60c. to 1.65c.; Sheared Iron Skelp, 1.90c. to 2c., all f.o.b. Pittsburgh, four months, or 2 per cent. off for cash, 30 days.

Pipes and Tubes.—As noted in this report last week, the Pipe mills have advanced prices without concerted action. As repeatedly stated, it is not a question of price, but to find a mill that has anything to sell. There is nothing big in the market, but a very general heavy demand, with all the mills sold up anywhere from two to four months. The movement to take over the Pipe mills into the National Tube Company is making slow progress. It is understood that some serious obstacles have been met, but it is believed that these will be overcome. The project, however, is very far from consummation. We quote Black and Galvanized Pipe at 60 per cent. off, with four 10's for small lots, at mill, and an extra 5 per cent. for carload lots, delivered. Demand for casing is very heavy, but prices are no higher. We quote Screw and Socket Joint at 52½ and 5 per cent., Inserted Joint at 47½ and 5 per cent., with an extra 5 per cent. to dealers. There is a very heavy demand for Boiler Tubes and an advance in prices before long is probable. We quote: 1¼ and 1½ inch, Iron or Steel, at 45 per cent. off list; 1¾ to 2½ inch, inclusive, Iron, 55 per cent.; Steel, 60 per cent.; 2¾-inch and larger, Iron, 60 per cent.; Steel, 62½ per cent., with an optional 5 per cent. to dealers.

Connellsville Coke.—Last week was a record breaker in the matter of production. Of 18,653 ovens in the Connellsville region 16,385 were active, the output being 179,163 tons, while the shipments out of the region were 10,082 cars. Nearly all the ovens of the H. C. Frick Coke Company are now in blast and running six days a week. The output of this company last week was the largest of any one week in their history. Prices on Coke are very strong and we quote Furnace Coke at \$1.75 and Foundry Coke at \$2.15 to dealers and \$2.30 to consumers, in tons of 2000 pounds, at oven.

We can state officially that the report that a new Wire Nail plant would be built at Rankin, Pa., near Pittsburgh, and adjacent to the Rankin Works of the American Steel & Wire Company is untrue. The facts are that Thomas Walker, formerly President of the Pittsburgh Wire Company, which concern was taken over some time ago by the American Steel & Wire Company, has bought about 10 acres of land lying on the Monongahela River, and adjacent to the works of the American Steel & Wire Company. Mr. Walker bought this ground as an investment and has no intention, at present at least, of building a Wire Nail mill.

Dunbar Furnace Company, Dunbar, Pa., have given their employees a third advance of 10 per cent. in wages.

The Carnegie Natural Gas Company of Pittsburgh have purchased for \$40,000 a controlling interest in the Waynesburg Natural Gas Company, Waynesburg, Pa.

The stockholders of the Wilkes Rolling Mill Company, at Sharon, Pa., are considering the advisability of adding a Bar mill to their plant. At present they only make Muck Iron, which is sold in the open market. The Tyrone Iron Company, Tyrone, Pa., have posted notices that on May 1 wages in all departments of their plant will be increased 10 per cent. The increase is entirely voluntary on the part of the company, and they have a large number of orders on their books.

The Ohio Valley Iron Company of Wheeling, W. Va., have been organized with a capital stock of \$150,000, and have leased Jefferson Furnace, at Steubenville, Ohio, belonging to the Jefferson Iron Works, but which has been operated under lease for some time by the National Steel Company, whose lease expires on May 1. The new company are composed of Samuel G. Copper and C. F. Banning, of Naylor & Co., of Pittsburgh; John A. Topping, B. M. Caldwell, J. J. Holloway, and George A. Dean of Aetna Standard Iron & Steel Company, at Bridgeport, Ohio. The furnace is 78 x 18 feet, and has a capacity of about 225 tons of metal per day.

All the employees of the Ohio Tube Company, at Warren, Ohio, who have been on a strike, have been paid off and the plant is idle in all departments.

We are officially advised that the Oliver Iron Mining Company of Pittsburgh have secured a 20-year lease from Corrigan, McKinney & Co. of Cleveland, Ohio, on the Queen mine, at Negaunee, in the Marquette region. This mine produces non-Bessemer Hematites, and since 1886 has turned out 2,918,000 tons of Ore. It is the largest non-Bessemer mine in the Marquette region, and contains the largest body of Ore in that region. The Oliver Iron Mining Company take possession at once and will operate the mine to full capacity and install considerable new machinery.

Cleveland.

CLEVELAND, OHIO, April 11, 1899.

Iron Ore.—An undisguisable sense of relief has followed the announcement of the return to work of the miners on the Marquette range. In a certain sense the backbone of the strike was broken when practically two-thirds of the miners went to work the latter part of last week, but the announcement that the remaining men have also gone to work is none the less welcome. There can be no doubt that the resort of the operators to injunction proceedings and other prompt measures went far toward facilitating a speedy settlement. The strike, while on the surface of rather meager importance, might easily have proven far-reaching in its consequences. In the first place there was an uncertainty that it would not spread to other ranges. Moreover the strike was not induced by a demand for increased wages, but by a desire for an agreement on the part of the companies that none but union men should be employed in the mines. Such a concession would if secured have placed the operators virtually at the mercy of the men and would have compelled the discharge of a large number of men whom they were determined to retain, not only because of the faithful service which they had rendered, but by reason of the need of all available help to meet the heavy demand for Ore. Representatives of the companies operating in the district state that with all the men back at work the supply of labor on the range will be very nearly equal to the demand. Considerable interest has also been manifested in the announcement that J. J. Hill will extend the railroad which he some weeks ago purchased from Wright & Davis to the Sautny mine, a distance of some 22 miles east of the present terminus of the line on the Mesaba. The interest is due chiefly, however, to the report that he has been awarded the contract for transporting the Ore which the American Steel & Wire Company will have taken out at the Sautny. Simmered down, it must be admitted that the chief influence upon whose force students of the Lake Ore situation are now speculating is the entrance into the field of the large Iron and Steel producing combinations. This has, of course, been emphasized by the announcement that the American Steel & Wire Company, who recently bought the Wolvin fleet of five steamers, have contracted for the building of two steel tow barges of the largest type at the works of the Chicago Shipbuilding Company. These latter will not, of course, be completed before the opening of navigation in 1900, as no earlier delivery than that can be promised at any lake yard. Other announcements of the week are that the Cleveland Rolling Mill Company fleet, which it seems were not included in the sale of the Cleveland mills, will within a short time be formally transferred to the American Steel & Wire Company, and that the Cleveland-Cliffs Iron Company have purchased for \$70,000 the large wooden schooner "Chattanooga," built last year by Capt. James Davidson. There would seem to be no doubt, moreover, that the Republic Iron & Steel Company will participate with the Federal Steel Company, National Steel Company, American Steel & Wire Company and the Carnegie interests in the scramble for lake tonnage. It has been estimated that if the negotiations now being conducted by the above interests to secure control of Lake Superior mining property are successful more than three-quarters of next season's aggregate production of Ore will be in the hands of these producing-consuming interests. The main question just at present seems to be the uncertainty as to where the necessary vessels are to come from. The shipyards, as has been stated, are full of work and the limited number of modern steel freighters of the largest type available could only be secured upon payment of prices that as a rule would be considered too high. Meanwhile the individual vessel owner who controls one or more vessels and is engaged in the transportation business only, has been doing not a little thinking, and judging by general comment the majority of this class have arrived at the conclusion that the general control of Ore transportation by the Steel companies is some distance off. Prospects for the season just opening are the brightest and evidently

most of the vessel men will be in no hurry to dispose of their property.

Simultaneously with the announcement of the settlement of the trouble at the mines is another which insures the avoidance of a strike of Ore unloaders at Lake Erie ports, a contingency which might have proven no less serious. At a meeting of the Ore dock managers in Cleveland to consider the matter of charges for unloading vessels and Ore handlers' wages it was unanimously decided to advance the wages of the men 1 cent per ton. This amounts to the adoption of the 1896 scale, and the men on the Cleveland docks will be paid 11 cents per ton, while those at other ports will receive 10 cents per ton, for shoveling Ore. The charge for the vessels was fixed at 16 cents. This advance from 14 to 16 cents for unloading is bound to prove a considerable disadvantage to the large number of vessels which have been tied up to season contracts at a rate of 60 cents. The dock managers, however, claim that their business is one of the most unprofitable connected with the transportation of Ore, and that the increased cost of labor cannot be met in any other way. The whole subject coming up under the circumstances prevailing just at this time is likely to eventually receive the attention of the Lake Carriers' Association, the organization of the vesselmen of the Great Lakes. Many of the vessel owners insist that the system of rebates to furnaces on Ore and other abuses of the dock business are matters that should not concern the ship, and they are urging that the matter be taken up with a view to arrival at an understanding that vessels shall have nothing to do with unloading charges.

There is not a more interesting phase of the present Iron Ore situation than the development of the past few months, or a year at most, in the matter of dock and unloading facilities. The betterment of conditions has been carried on alike at the head of the Great Lakes, and at the unloading ports on Lake Erie, and despite reports which have been circulated to the effect that the improvements undertaken have been of rather greater proportions than have been anticipated and are likely therefore to entail delays after the opening of navigation, it may be said with the utmost assurance that the loading and unloading docks, like the boats, will be fully able to handle all the Ore which may be brought to them this season, and it only remains for the mines and the railroad companies to do their share. Of the improvements at the Lake Erie ports something has been said in previous correspondence to *The Iron Age*, and that equal progress has been made by the interests at the head of the lakes is conclusively proven by statistics just compiled and which show that whereas there are ready for use this year a total of only 20 docks, these docks contain an aggregate of 4529 pockets, affording an aggregate storage capacity of 672,966 tons of Ore. This increase is certainly rather surprising. Figures gathered in 1896 show that there were in use in that year a total of 21 docks with 4438 pockets and a total capacity of 617,250 tons of Ore, while figures compiled from another source show that in 1898 the 21 docks had a total capacity of 623,612 tons. The dock which passed out of existence was No. 2 at Escanaba, which had 192 pockets and a capacity of 20,928 tons. A moment's calculation will show, therefore, that so heavy has been the increase that not only has the loss above mentioned been overcome, but the working capacity of the dock system at the upper lake ports has been increased fully 50,000 tons over a year ago or two seasons ago. The increased facilities have been provided exclusively at the ports of Two Harbors and Duluth. The Duluth & Iron Range dock No. 1, which in 1896 had 141 pockets and a total capacity of 18,000 tons of Ore, has been increased to 200 pockets, with a total capacity of 40,400 tons, while dock No. 2 of the same system shows an increase from 176 to 208 pockets, the capacity figures advancing from 23,900 tons to 42,000 tons. At Duluth dock No. 2 of the Duluth, Missabe & Northern Road has been increased from 192 to 384 pockets, and the capacity consequently doubled. Of these new structures, 151 pockets, having a capacity of 56,960 tons of Ore, will be used for the first time upon the opening of navigation this season. Of these, 59 pockets, with a capacity of 22,400 tons, are on the docks of the Duluth & Iron Range Road, while the remaining 92 pockets, whose total capacity aggregates 34,560 tons, are on the Duluth, Missabe & Northern docks. Ore men who have recently visited the receiving ports on Lake Erie say there should be no fear as to danger that the facilities will not prove adequate. It is stated that the 1100 feet of new docks of the Carnegie Company at Conneaut, Ohio, will assuredly be completed in time for the opening of navigation. These new docks will be temporarily equipped with 16 whirles, for which will be substituted later 12 regular unloading machines of various types, as mentioned in *The Iron Age* last week. It is claimed that the individual record for Ore unloading on the Great Lakes is held by a hoister on the Carnegie docks, who took out 42 buckets in 29 minutes.

Pig Iron.—The past week has been quieter than several of its predecessors, and even the danger of a strike

in the mining districts did not induce a temporary flurry. The consumption of Iron continues heavy, but the past seven days has seen rather a lull in sales, no transactions of any magnitude being reported. Bessemer is quoted at \$14.50; No. 1 Foundry at \$15, and No. 2 Foundry at \$14.50, Valley furnace, and the market is firm and strong at these prices. Considerable Iron has been sold for the third quarter delivery, but furnacemen are pretty well provided so far as immediate demand is concerned.

Finished Material.—The comparative quiet of the week just closed has extended also to all classes of Finished Material. No transactions of any import have been reported, and the quotations on all classes of Structural Material, Plates, &c., remain unchanged. The mills are generally well sold up, and little new business need be anticipated for some time. Present quotations are well taken. Steel Bars show the only advance, being quoted at 1.65c., Pittsburgh. Local sales out of stock are still made at 1.75c., but an advance to 1.80c. is an immediate probability.

Old Material.—The decrease in demand is attributed to the formation of the Republic Iron & Steel Company. Dealers say that it is not that consumers are not in need of material, but uncertainty induced by the formation of the combination mentioned induces them to wait before placing orders. The supply continues limited, and no marked improvement is anticipated under two months. Quotations to-day are as follows: Steel Melting Stock, \$13; No. 1 Wrought, \$17; No. 1 Cast, \$12; Car Wheels, \$16.50; Cast Borings, \$8; Turnings, \$9.

St. Louis. (By Telegraph.)

Office of *The Iron Age*, 512 Commercial Building, {
St. Louis, April 12, 1899. }

Pig Iron.—There has been more or less mention made of long idle furnace stacks being blown in to become a factor in the relief of the Pig Iron scarcity. Among the better informed it is said that while new sources of production may enter the market, the furnaces long in use will of necessity shut down for repairs and the consequent conditions be unaltered. Locally no let up is noted for Pig Iron, but, on the contrary, some foundries are reported as likely to face a gap before the last half of the year's supply comes to them. It is noted that Connellsville Coke has been advanced 40c. a ton and the price is now \$4.75 per ton. St. Louis. There has been no change in prices, but those mentioned below are quoted nominally, f.o.b. cars St. Louis:

Southern, No. 1 Foundry.....	\$15.50 to \$16.00
Southern, No. 2 Foundry.....	15.00 to 15.50
Southern, No. 3 Foundry.....	14.50 to 15.00
No. 1 Soft.....	15.50 to 16.00
No. 2 Soft.....	15.00 to 15.50
Gray Forge.....	14.00 to 14.50
Mottled.....	13.75 to 14.25

Bars.—Locally an excellent business has been done for the first quarter of the year. Those who attended the meeting of the Heavy Hardware jobbers in Chicago last week learned that plenty of business may be obtained at ruling market prices. The period of depression is now considered a thing of the past and the volume of business presenting itself is unusually heavy. A 1000-ton order was placed by a St. Louis concern lately, whose business is exceeding their expectations. There is no question that the condition of country roads is a barrier to heavier trade, and no remedy is in sight to correct the nuisance. Only fair deliveries are had from mill and no large quantities are bid on. Bar Iron is quotable at 1.55c. to 1.60c., base, half extras, St. Louis, in carload lots, and jobbers quote 1.75c., full extras, in lots from store. Bar Steel is placed at 1.80c., base, St. Louis, in carload lots from mill.

Rails and Track Supplies.—More interest is being taken in supplies, both because of approaching needs and the higher prices. Several changes have occurred this week and we quote Splice Bars at 1.50c. to 1.60c.; Track Bolts, with Square Nuts, 2.60c.; with Hexagon Nuts, 2.75c.; Spikes, 2.20c. to 2.30c.; Iron and Steel Links and Pins, 2c. to 2.10c.

Sheets.—The peculiar condition of the Sheet Iron trade still prevails. Few mills will quote, but where an occasional contract permits it a carload has by consent of the original buyer been switched over to fill immediate needs. A sale of this character was noted at 2.85c., St. Louis, for No. 27 Black to a jobber. Small lots have been sold out of stock for better than 3c., which shows the nature of the demand. Galvanized is quoted by sales agents at 70 and 10 per cent. off, East St. Louis, to jobbers, but even on that basis a regular customer was refused an option for a large quantity.

Pig Lead.—There is a waiting market pending settlement of the new Lead combine, for which a meeting is

said to have been called for Wednesday to elect officers. The market is dull at 4.12½c. bid for Common and 4.17½c. bid for Chemical Lead. Lead Ore fell off 50c. since last report and was sold at \$25 per 1000 pounds.

Spelter.—There is a decided demand for Spelter and smelters have made sales at 6.25c. Bids to-day were made at 6.20c., but none to be had. The trade looked for much higher prices and it is noted that Zinc Ore has scored another advance of \$1 per ton this week. The top price paid was \$46 per ton and the tendency is to higher price.

Philadelphia.

Office of The Iron Age, Forrest Building,
PHILADELPHIA, PA., April 11, 1899.

The situation in the Iron and Steel trades has shown very little change during the past week. There is a good demand for almost everything on the list, but there is a more settled feeling in regard to prices. Buyers appear to be satisfied to take material at quoted rates, and sellers without urging matters are equally content to do business at ruling prices, so that the speculative element is pretty well eliminated. Under these circumstances there is nothing in the immediate outlook to indicate much, if any, change from the rates now quoted, although eventually it will hinge upon the extent to which production can be increased during the next 60 or 90 days. Consumption on a very large scale may be regarded as a settled fact; production, however, is a matter of comparative uncertainty, so that there is still enough of doubt to cause extreme watchfulness on both sides of the market. As regards the volume of business, it is satisfactory in every sense of the word. There is not only plenty of work in hand, but there is such a continuous inflow of new business that fears of reaction find no place anywhere. Shipyards, bridge works, boiler shops and other large consumers are steady buyers, and, in fact, orders come from all quarters and for everything in the way of Iron or Steel. There is an inquiry to-day for a considerable quantity of Plates for Southeastern Russia, and some business has been closed for small and medium sized lots for other countries, including one for Plates for Porto Rico. On the whole, therefore, while the market has a somewhat subdued appearance, there is an undertone of strength which betokens an excellent outcome for the spring and summer months.

Pig Iron.—The market is steady and possibly a shade firmer than it was a week ago. A few furnaces with a little Iron for sale took a notion that \$15.50 for No. 2 X Foundry would be a satisfactory price, and quoted that figure, but since then they have advanced to \$15.75, while others who had kept on at \$15.75 to \$16 show no signs of receding from that basis. Others, again, who had made attempts to find a market for the last half of the year have been taken up, which appears to establish quotations on a pretty firm basis, that is to say, at \$15.75 for No. 2 X Foundry for April, May and June, and a little below that for deliveries extending from July to December. Selling of the late options are the owners of furnaces that are just starting in, and have no old contracts to fill, consequently they are in good shape to cut a little under, as the margin to them is no doubt very satisfactory. The main point to be established, however, is that there is a market for about all the Iron that can be offered, and that current quotations appear to be recognized as reasonably safe for both sides. Under these circumstances it may be assumed that for the present prices will not vary a great deal, although developments in regard to Ores and fuel will be carefully watched, as they will be features of the first importance. Sales have been about equal to the offerings, 5000 and 10,000 lots for the last half of the year, and smaller lots for the nearer months, at about the following figures for seaboard or equivalent points: No. 1 X Foundry, \$16.50 to \$17; No. 2 X Foundry, \$15.75 to \$16.25; Plain, \$15.25 to \$15.50; Standard Mill Iron, \$15 to \$15.25; Basic, \$15 to \$15.25; Low Phosphorus, \$18.50 to \$19.50.

Billets.—There is very little business doing, as buyers are moderately well supplied, and in any case they are not very confident at the high prices now ruling. About \$27.50 to \$28 appears to be a fair average of to-day's asking prices.

Plates.—There is no material change in the Plate trade. Inquiries for large lots are being constantly received, but only a portion can be accepted, as mills are already far behind in deliveries, with but very little prospect of catching up this side of midsummer. Prices are strong, but the point with buyers is to get deliveries rather than to stick for a half-tenth or a tenth on prices, which for seaboard or equivalent points are usually quoted as follows: 2.20c. to 2.30c. for ¼-inch and thicker; Shell, 2.35c. to 2.40c.; Flange, 2.50c.; Fire Box, 2.60c.

Structural Material.—There is all the business that can be handled and mills are running to their fullest capacity without being able to catch up with the demand. Prices are about what manufacturers see fit to name for early deliveries, although official quotations remain about as follows: Angles, 1.63c.; Beams, 15-inch, 1.63c.; Tees, 1.68c.; Zee Bars, 1.67c.; Bulb and Deck Beams, 1.83c.

Bars.—The market is of a more settled character, and while prices are firm there is less disposition to crowd them to a higher point. The demand is excellent, however, and mills have more business than they can conveniently handle, and in some cases are compelled to decline anything additional, except for long delivery. Business has been done at about the following figures for seaboard or equivalent points of delivery: Ordinary Bars, 1.40c. to 1.45c.; Refined Bars, 1.50c. to 1.55c.; Test Bars, 1.65c.; Steel Bars, 1.70c. to 1.75c.

Sheets.—The same old story must be told in regard to business in this department. The demand is very heavy, prices are firm, and a great deal of business is turned down or postponed for further consideration, as it is impossible to accommodate all comers. Sales at about the following figures for best makes (Common Sheets two-tenths less): No. 10, 2.60c.; No. 14, 2.70c.; No. 16, 2.80c.; Nos. 18-20, 2.90c.; Nos. 21-24, 3c.; Nos. 26, 27, 3.10c.; No. 28, 3.20c.

Old Material.—The market is irregular, some specialties being decidedly weaker, while others command top prices with a tendency toward still higher figures. Steel is the weak spot, desirable Iron stock scarce and firm. There is easily \$1 to \$1.50 per ton variation in quotations, which are fairly covered in the following list, which are for deliveries in buyers' yards: Cast Borings, \$10 to \$10.25; Wrought Turnings, \$11 to \$11.25; Machinery Cast, \$13 to \$13.50; Old Car Wheels, \$15 to \$15.50; Heavy Steel Scrap, \$14.50 to \$15; Steel Rails, \$15 to \$15.50; Iron Rails, \$18 to \$19; No. 1 Railway Scrap, \$18 to \$18.50; Iron Axles, \$21 to \$22; Steel Axles, \$16.50 to \$17.50.

Birmingham.

BIRMINGHAM, ALA., April 10, 1899.

A quiet tone pervades the market and in some grades it looks as if sales had been made in scattering cases at a concession of 25c. But as a rule quotations have been fairly well maintained. The furnace interests have not had any propositions in the way of large orders. One interest reports that they are having only the dull routine of a very quiet time, with few orders to break the monotony of doing almost nothing. Another reports that their sales so far this month exceed their make to date. Only the inference can be drawn that no one here is pressing the market or seeking buyers. With some deliveries are pressing capacity to meet them, and one can also say that the order books are pretty well filled with forward delivery business. There is nothing new to be mentioned in that line. Export room was offered for 3000 tons. Some did not have the Iron to spare and some found prices of domestic market more satisfactory than export prices. So it was not taken. There was some trading in warrants. One round lot of 5000 tons changed hands at \$9.75 for Gray Forge and part of it was unloaded here at \$10 in small lots. Some, owned "on the outside," was offered at \$9.70 and finally was sold. Some No. 2 Soft was seeking a buyer at \$11.50. These offerings came toward the close of business for the week, which militated against placing them. The rather quiet tone of the market is taken as a natural course of the market after the activity we have had, and, as stocks continue to be only nominal, it excites no concern.

The past week two new industries were secured. One was a flour mill, to be established by a Westerner. The other was a plant for making saw mill machinery, to be established by the engineering firm of Browning & Co., already located here. There is some talk of rehabilitating the Mary Pratt furnace, which has been idle for years, and put it in operation. But as it would be equivalent to building a new furnace that rumor is a very remote possibility. An option is held on the furnace and property connected with it, which consists of about 30 acres of land. It is desirably located for railroad yards and shops, &c. Earnest money has been paid on the option, which expires before this is printed. It is almost an absolute certainty that the property will change ownership this week and pass into the hands of the same gentlemen who bought the Gate City property. It is more than probable that it will land in the "Seaboard Air Line" for city yards. That this line is preparing to come in here and contest for the business here is apparent to any intellect educated to read between the lines.

At one of the mining properties of the Tennessee Company it was mentioned last week that a strike had occurred. It continued all the past week. Report is that it

is based on no dissatisfaction with the wages, but on dissatisfaction with one or more officials immediately in charge. One side or the other must give way, for it is a case in which compromise can't divide the difference. The strikers will go to work again. It is simply a case of baseless apprehension.

In Coal the situation remains unchanged, with a ready market for all that is mined. The advance from the low point of 85c. per ton to \$1.10 for "run of the mine" marks the improvement that has obtained. There will unquestionably be an increase in the output this year, as interest in Coal properties is increasing with the increasing demand for Coal.

The bank clearings for the last week are more than double those for the corresponding week of last year. Their cash on hand is \$5,000,000, amount loaned is \$2,000,000 and amount due from banks and bankers \$3,000,000. This shows that there is plenty of money in bank and that people either don't want it or can't get it.

In the building line active preparations continue for the erection this season of a large number of structures for business and residences. At least 150 will be erected in city limits.

Announcement is made of the preparation of the Clarksville Furnace for again making Iron. The parties who have leased it and have the option to purchase are Chicago and Louisville people. The anticipated output for six months has been sold. The furnace will require more or less overhauling before going in blast.

Mary Pratt Furnace and all property attached thereto has been purchased by private parties. Fifty thousand dollars will add a new 300-ton furnace, put in a by-product plant and supply gas for domestic purposes. Ore, Coal and limestone lands have been secured for furnace purposes. Southern Railway purchased $2\frac{1}{2}$ blocks in city limits to increase their facilities for growing business, the price paid being \$100,000.

Cincinnati. (By Telegraph.)

Office of The Iron Age, Fifth and Main streets, {
CINCINNATI, April 12, 1899. }

The market for all standard grades of Pig Iron, both Northern and Southern, has been quiet. There has been some more activity among the Northern furnaces than with the Southern. The situation, however, is strong and steady, and prices are more uniform than for some few months past. The excitement and tension of 30 days ago has about all disappeared. While consumers are not finding it possible to buy freely of any desired brand or grade for delivery during the next four months yet they are managing to make out with piecings here and there and substitutions of such grades as can be had. Some grades of Charcoal Iron are exceedingly hard to secure. While there has been comparatively little trading going on, it is still claimed that the aggregate of small business is about what might be expected under the circumstances. Prices are unchanged, and while some furnaces are still quoting 25c. below to-day's figures, others are reporting some selling at 25c. above. So far as can be learned figures given herewith very fairly represent the market. We quote f.o.b. Cincinnati as follows:

Southern Coke, No. 1.....	to \$15.00
Southern Coke, No. 2.....	to 14.50
Southern Coke, No. 3.....	to 14.00
Southern Coke, No. 1 Soft.....	to 15.00
Southern Coke, No. 2 Soft.....	to 14.50
Southern Coke, Gray Forge.....	to 13.25
Southern Coke, Mottled.....	to 13.25
Ohio Silvery, No. 1.....	\$16.75 to 17.25
Ohio Silvery, No. 2.....	16.25 to 16.75
Lake Superior Coke, No. 1.....	16.25 to 16.50
Lake Superior Coke, No. 2.....	15.75 to 16.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$15.75 to \$16.25
Lake Superior Car Wheel and Malleable..	16.50 to 17.00

Plates and Bars.—The situation is still strained, and buyers are paying fancy prices in many cases. Values are irregular and correct quotation well nigh impossible.

Old Material.—The market has been rather quiet. Prices, however, have held steady. Offerings are not large. Quotations, f.o.b. Cincinnati: No. 1 Wrought Railroad Scrap, \$14 to \$14.50 per net ton; Cast Scrap, \$10.50 gross; Car Wheels, \$14 gross; Iron Axles, \$19 net; Iron Rails, \$16; Steel Rails, \$11.

The growing financial strength of Chicago is illustrated in the case of the Illinois Trust & Savings Bank. This institution, which had a capital stock of but \$100,000 15 years since, with deposits of perhaps \$500,000, will increase its capital stock May 11 by the addition of \$1,000,000, making it \$3,000,000. Its surplus and

undivided profits are \$3,000,000. Thus the actual cash protection to depositors will be \$6,000,000. The deposits within the past year have at times exceeded \$65,000,000.

The Belgian Iron Market.

BRUSSELS, March 23, 1899.—The latest news deals with a renewal of the Coal contracts which were to expire on April 1. Some time since the collieries announced the intention to raise prices to the rolling mills by about 2 francs per ton. In order to meet the situation the managers met and decided to do everything within their power to escape from such an advance, which for the smaller mills meant an increase of about 4000 francs per month in their cost. The rolling mill managers sent a delegate to England with a mission to treat for all of them. He has sent a first steamer load as a sample. The English Coal, which costs, delivered to the Belgian mills, less than the native fuel, was regarded as excellent in itself, but at the same time it was shown that the Belgian furnaces are not designed for this quality, and that the Belgian workmen did not know how to handle it most effectively. Still a number of mills, many of them very important ones, purchased considerable quantities of Coal in England. These purchases, however, did not seriously change the situation, which points to a scarcity of industrial fuel in Belgium. In order to show the extent of it, it is only necessary to recall some official figures. When the first two months of 1899 are compared with those of 1898 it is shown that Belgium has imported 339,777 tons of Coal in 1899 as compared with 341,790 tons in 1898, and that it has exported 686,451 tons in 1899 in place of 591,518 tons in 1898. This shows a decrease of about 100,000 tons in the quantities available for the Belgian industries.

This is a very large quantity for two months, when it is considered that our Coal production has not increased, and that on the contrary the productiveness of our workmen has a tendency to fall off. On the other hand, our requirements have increased, all our metallurgical plants crowding their output to the utmost. By way of example I may state that the Belgian furnaces have produced, during the first two months of 1899, 190,190 tons of Pig Iron as compared with 151,530 tons in 1898, and that the production of our puddle mills and our steel works has increased to an even greater extent since Pig Iron is, so to say, impossible to find. Under such conditions the collieries may well show themselves greedy. They were even obliged to be so in view of the fact that the men have demanded notable increases in wages. An increase of 2 francs per ton has, therefore, seemed necessary to the collieries and has been accepted by the Iron works.

While the collieries in the Liège and Charleroi basin have closed at this price for a year the merchants in the Mons district did not care to engage themselves beyond the first quarter, so that the agitation in that district will be considered again in the summer. This situation is troublesome to the rolling mill managers of the Hainaut district. In fact their uncertainty as to the cost of Coal during the second half of this year has made it impossible for them to enter sales of Iron and Steel during that period. However this may be, the scarcity of fuel is very great in Belgium, France, Germany, and even in England at the present time, so that the Belgian Ironmasters fear that soon they will have to reduce their output through inability to procure Coal, and this at a time when the demand is becoming more and more abundant. Without a doubt this forced limitation of product will bring about strengthening markets and probably a rise in prices. Our producers, on the other hand, are anxious to lower as much as possible their cost of production by increasing output, and they are eager also to extend their markets. Whatever the future may bring, our Iron plants are now very prosperous. In Belgium the construction shops, the Bolt and Nut works, the foundries, &c., are overwhelmed with work, and produce as much as their facilities will permit. The export takes all that is left and the demand from this quarter is so heavy beyond anything experienced thus far that export prices are rising to the level of home values, and sometimes exceed them. The principal producers of Iron and Steel are so loaded with orders and specifications that they refuse to sell any further. Those least favored in this regard will take no orders above 250 or even 150 tons when inquiries are for 500 or 1000; therefore, a further rise is imminent and has even begun in some quarters. Thus the base price of Merchant Bars shows a tendency to increase from 150 to 152½ francs per ton, and that of Plates from 175 francs to 180 francs. This increase will begin on April 1, when the Iron works must pay an advance of 2 francs per ton on fuel, because otherwise there would be no harmony between the cost and the selling price of finished products.

In order to show the different stages of prices since the opening of 1898, we reproduce below the quoted prices for each month to date:

Tin Plate.—The situation remains unchanged. Orders have been numerous, although the purchasers showed considerable cautiousness in the amount they

	Ordinary Mill Iron.	Steel Ingots.	Ordinary Merchant Bars.	Merchant f.o.b. Antwerp.	Merchant Steel at mill.	Merchant Steel, f.o.b. Antwerp.	No. 2 Iron Plates, f.o.b. mill.	No. 2 Iron Plates, f.o.b. Antwerp.	Basic Bessemer Plates, at mill.	Basic Bessemer Plates, Antwerp.	Beams, f.o.b. mill.	Beams, f.o.b. Antwerp.
1898.												
January.....	55.00	95.00	132.50	130.00	142.50	137.50	145.00	140.00	155.00	150.00	135.00	130.00
February.....	54.50	95.00	132.50	130.00	142.50	137.50	145.00	137.50	155.00	147.50	135.00	130.00
March.....	53.50	95.00	132.50	130.00	142.50	137.50	145.00	135.00	155.00	145.00	135.00	130.00
April.....	53.00	95.00	132.50	128.75	142.50	137.50	145.00	135.00	155.00	145.00	135.00	126.75
May.....	53.00	95.00	132.50	126.25	142.50	136.25	140.00	135.00	150.00	145.00	135.00	127.50
June.....	53.00	95.00	132.50	127.50	142.50	135.00	140.00	135.00	150.00	145.00	135.00	130.00
July.....	53.00	95.00	132.50	127.50	142.50	135.00	140.00	135.00	150.00	145.00	135.00	130.00
August.....	53.50	95.00	135.00	125.00	145.00	135.00	145.00	140.00	155.00	150.00	135.00	128.75
September.....	54.00	100.00	135.00	125.00	150.00	136.25	150.00	145.00	160.00	155.00	135.00	127.50
October.....	54.00	100.00	132.50	126.25	150.00	137.50	152.50	150.00	162.50	160.00	132.50	128.75
November.....	54.00	105.00	135.00	128.75	150.00	140.00	155.00	160.00	165.00	170.00	135.00	130.00
December.....	54.50	107.50	140.00	133.50	152.50	147.50	160.00	165.00	170.00	175.00	140.00	135.00
1899.												
January.....	55.00	107.50	140.00	135.00	152.50	148.75	165.00	165.00	175.00	175.00	140.00	135.00
February.....	60.00	110.00	145.00	140.00	165.00	150.00	170.00	170.00	180.00	175.00	140.00	140.00
March.....	62.00	120.00	150.00	150.00	165.00	160.00	175.00	175.00	185.00	180.00	150.00	150.00

While the scarcity of Coal is great in Belgium that of Coke is not less. The Coke syndicate has forced from the furnaces a renewal of contracts for the year 1900 at the price of 20 francs per ton, and even then the syndicate has declined to guarantee every furnace the quantities which were regarded as indispensable, having preferred to deal also with the French works in the Longwy district. The Belgian blast furnaces have therefore secured Cokes, fines, in England. There has also been some talk of the possibility of securing American Coke. Suffice it to say that if the latter could be delivered at Antwerp at 15 to 16 francs per metric ton Belgium would take considerable quantities. There is no import duty in Belgium on Coke.

Pig Iron is also scarce. The Belgium Luxemburg district desires to force the iron mills to buy now for the year 1900 at 60 francs f.o.b. furnace, which would be 65 francs f.o.b. mill. There is a duty of 2 francs per metric ton. The United States delivered to us 2168 tons in January and February, 1899, of which 1655 tons were for February alone. Your producers could easily send considerable quantities, so pressing are our requirements.

Metal Market.

Office of The Iron Age, 232-238 William street, }
NEW YORK, April 12, 1899. }

Pig Tin.—The market here has danced to the tune set by the London prices. The fluctuations brought prices as high as 25½c. on Monday, but a rebound saw to-day's closing figures as low as 24½c. to 24¾c. Arrivals here so far this month have been large, amounting to 1940 tons. There are due this week 1250 tons additional, and steamers due next week will bring something like 700 tons. So that in all we will have about 4000 tons of new supply this month. This will give us at least an ample supply. The premium hitherto existing on spot has already disappeared. The London market fluctuated widely. On the 6th inst. it closed £111 10s., on the 7th £113 7s. 6d. was quoted. Prices rose to £115 2s. 6d. on the 10th, and the following day reacted to £113 7s. 6d. The closing price was £112 5s. for spot and £112 16s. 3d. for futures.

Copper.—The market is very firm, and spot delivery of Lake is extremely scarce. There is no large business doing, but the price quoted for spot lake is between 18½c. and 18¾c. May delivery is nominally quoted at 18c. Electrolytic is quoted 17¼c. to 17½c. Casting is between 17c. and 17¼c. Exports so far this month amount to 2302 tons. London opened on the 6th of this month £72 6s. It fell to £71 10s. on the 10th, and closed to-day £72 16s. 3d. for spot and £71 18s. 9d. for three months' futures. This shows an improved tone for spot delivery, but a heavy discount on futures. Best Selected advanced to £76 10s.

Pig Lead.—The market here during the entire week was extremely quiet. Quotations at the close to-day call it 4.27½c. to 4.32½c. for spot, April and May. St. Louis was dull and nominal at 4.12½c., and London advanced to £14 10s.

Spelter.—Is very firm, spot delivery scarce and quoted 6.50c. to 6.60c. In April and May a little business is said to have been transacted at figures neighboring on 6.42½c. Spelter for April and May delivery was quoted here at the close to-day 6.45c. to 6.50c. St. Louis is strong and reported sales of 200 tons this morning at 6.27½c. The Ore market took another jump of \$1 per ton, which brings the price to \$46 per ton. London has advanced to £27 18s. 9d., but closes to-day £27 17s. 6d.

Antimony.—Remains unchanged with prices: Hall's, 10c.; Cookson's, 10c. to 10¼c.

Reports have been circulated during the last week to the effect that the American Tin Plate Company have sent out a circular quoting \$4 per box of 100-pound Cokes, f.o.b. mills. This is denied at the company's offices, and it is stated that they are still adhering to the policy of quoting only delivered prices. The price is unchanged, being on a basis of \$4.05 to \$4.10 for 100-pound Cokes, delivery latter half of this year.

Nickel.—Is very strong, and about sold up. Prices which are being quoted for Canadian Nickel range from 38c. to 40c. for lots larger than 1000 pounds, and 40c. to 45c. for smaller quantities.

The Empire Steel & Iron Company.

The Empire Steel & Iron Company were incorporated under the laws of New Jersey with \$5,000,000 capital, one-half each of preferred and common stock. The company are somewhat closely associated with other important furnaces with interests centering in Rogers, Brown & Co. and Moore & Schley. They have acquired certain blast furnaces and hold options on several others. The company have acquired by purchase the property of the Greensboro Furnace Company of Greensboro, N. C., and the Henry Clay furnaces at Reading, Pa. The properties of the Valentine Iron Company at Bellefonte, Pa., have been leased by the company. The Greensboro plant is a new one recently completed, which, however, will be blown in this month. It has a large ore deposit on the property, which has been worked since Revolutionary times. It is expected that the entire requirements of the furnaces can be supplied by their own mines, but a number of near by mines are available in case their product should be needed.

The Henry Clay furnaces at Reading have been owned and operated for 56 years by the Eckert family, the death of one of the brothers and the advancing age of the other being given as reason for the sale.

The Valentine furnaces at Bellefonte are about ready to blow in. They will use Lake Superior ore and Collinsville coke. The Reading furnaces are in operation. Steps have been taken toward the acquisition of certain other properties.

The office of the company is located at 1003 Empire Building, 71 Broadway, New York. W. L. Sims, for many years secretary and treasurer of the Sloss Iron & Steel Company of Birmingham, is in charge as general manager. Walter Kennedy, for many years associated with his brother, Julian Kennedy, as iron and steel engineer at Pittsburgh, is vice-president of the company and has charge of the physical management of the plants. The announcement as to the president will be made later. The company offer no securities to the public and have no intention of buying idle or abandoned furnaces. One or two furnaces have been secured in the South solely for the purpose of securing certain machinery quickly, available for strengthening the active plants. The company may build several new furnaces at points under consideration, but this has not as yet been definitely determined upon. The Board of Directors consists of E. R. Chapman of the National Steel Company, Archer Brown of Rogers, Brown & Co., W. L. Sims, Walter Kennedy and E. K. Somerwell of New York.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING APRIL 12, 1899.

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
\$47,100,000	Am. S. & W., Common.....	177,329	64½-71½	58½-65	62 -63½	61 -63½	62½-65	65½-67½
38,150,000	Am. S. & W., Pref. (7% Cu.)....	19,293	95 -100½	95 -98	97 -98	96½-97½	97½-100	99½-100
9,250,000	Col. Fuel and Iron.....	9,975	35½-38	34 -36½	35 -36	35 -36	35½-36½	36½-37
46,484,000	Federal Steel, Common.....	335,265	61½-70	57½-64	60½-63½	60 -61½	60 -63½	64½-67½
52,253,500	Federal Steel, Pref. (6% Cu.)....	114,265	87 -90½	78½-86½	82½-85½	82½-84	82½-85½	85½-87½
20,000,000	Tennessee Coal and Iron.....	75,155	56½-59½	51 -57	55½-57½	55 -56½	55 -58	58½-59½
	Cambria Iron, Phila.*.....	356	.....	-45½	.....	-45½	-45½	.....
	Cambria, Scrip**.....	.....	.....	.....	.....	.....	.....	.....
	Cambria, Steel***.....	31,995	23½-24	22 -23½	22½-23	22½-23½	22½-23	23 -23½
	Penna. Common, Phila.....	2,320	62½-63	-62½	62 -62½	-62	62 -63	65 -72½
	Penna. Pref., Phila.....	443	81 -84	.....	-81	-81	82 -82½	-85
28,000,000	Tin Plate Common, New York..	47,925	46½-50½	41½-45	44½-45½	43½-44½	44½-44½	45½-46½
18,000,000	Tin Plate Pref., N. Y., (7% Cu.)..	1,335	-95	-92½	93½-94½	93½-94	.....	-95
28,000,000	Tin Plate Com., Chic.....	39,458	46 -50	42 -46	43½-45½	43½-44½	44 -44½	44½-46
18,000,000	Tin Plate Pref., Chic. (7% Cu.)..	2,258	94 -95½	93 -94	.....	93½-94	93½-94	94 -94½
32,000,000	National Steel Common, Chic.....	43,595	56½-61½	46½-56½	51 -53½	50½-53½	40½-53	53½-57
27,000,000	National Steel Pref., Chic. (7% Cu)	5,107	92½-93½	89½-92	91 -92	91 -92	90 -92	91½-93
32,000,000	National Steel, Common, N. Y..	111,349	56 -62	44 -56½	51½-54½	50 -52½	50½-53½	57½-59
27,000,000	Natl Steel, Pref., N. Y. (7% Cu.)	8,179	92½-94	90 -92½	91½-92½	91½-92	.....	93 -93
	Bethlehem Iron.....	509	-108½	.....	.....	.....	106½-107	-106
	Bethlehem Steel Rights.....	690	.....	-24	.....	.....	21 -22	-23

* Par \$50. ** Par \$100. *** \$1.50 per share paid in.

Late Philadelphia and Chicago sales by telegraph.

The American Steel Hoop Company.

Arrangements have been practically completed for the consolidation of the hoop iron manufacturers. Ex-Judge W. H. Moore of Chicago, who promoted the American Tin Plate Company and the National Steel Company, has been in New York during the last few days perfecting the details of the organization. Naylor & Co. of 45 Wall street, New York, and Moore Brothers of Chicago are financing the deal. The Manhattan Trust Company issued a call to-day for money, which will be received on Monday next. The company will then be formally organized. The stock has been oversubscribed several times. The new company, who will be incorporated under the laws of New Jersey, will be known as the American Steel Hoop Company. Nine plants will be included in the organization. The capital of the new company has not yet been formally decided upon. The earnings of the company, it is estimated, will show 12 per cent. on the preferred stock under the consolidation. The plants to be included are: J. Painter & Sons Company, Isabella Furnace Company, Wm. Clark's Son & Co., Lindsay & McCutcheon of Pittsburgh, Union Works of the National Steel Company at Youngstown, Ohio; Monessen Steel Company of Monessen, Pa.; P. L. Kimberly Company of Sharon, Pa.; Portage Iron Company of Duncansville, Pa., and Pomery Iron & Steel Company.

The Standard Oil Company Enter Incandescent Light Business.

For some time past it has been rumored that the Standard Oil Company were acquiring a large number of patents and patent rights in the line of incandescent lighting and had acquired a large number of German patents. The incorporation yesterday of the American Incandescent Gas Light Company, with a capital of \$2,000,000, under the laws of New Jersey, with Albert C. Burrage of Boston, Henry A. Norton of Boston, Charles A. Dickey of Baltimore and Kenneth K. McLaren of Jersey City as incorporators, is said to be the first public move made in this direction. Albert C. Burrage of Boston, who, with James B. Dill of this city incorporated the Miners' Copper Company and the various other copper organizations which were subsequently shown to be controlled by the Standard Oil interests, gives credit to the statement that this is the company who propose, in behalf of the Standard Oil interests, to go into the lighting business in active competition with the Welsbach. The capital with which the company begin business is \$2,000,000, paid in in cash.

The charter as filed gives the company power not only to manufacture incandescent mantles and lights but to go into the lighting business in all details, furnishing gas for light, heat and power.

The Republic Iron & Steel Company.

In addition to the plants which are to constitute the Republic Iron & Steel Company, as announced in *The Iron Age* last week, arrangements have been made to include two others. They are the Sharon Iron Company, Limited, of Sharon, Pa., and a furnace which is also located in Sharon, which will be put in blast within a few weeks, having an annual capacity of 45,000 tons. Offers have been received for several companies who are not as yet included, and these are now being con-

sidered. The stock of the company has already been oversubscribed, and it is expected that the actual organization will take place about May 1. Harry Rubens, who is forming the company, is ex-Corporation Counsel of Chicago, Ill.

Iron and Industrial Stocks.

The sharp decline in industrial stocks has been the special feature of the week under review. The reason given for the decline is the unfriendly action of the various banks in regard to the industrials as to collateral. Only a few of those listed here, however, have been adversely affected, and it will be noted that the movement is toward recovery and a return toward a former level. It is said that the Pressed Steel Car Company preferred and common stocks will probably be admitted to the unlisted department of the New York Stock Exchange to-day. Sales in Federal Steel continue heavily.

Industrial stocks show the following closing quotations:

International Silver, Common.....	..
International Silver, 6s.....	..
Mich.-Peninsular Car, Common.....	46
Mich.-Peninsular Car, Preferred.....	94
Mich.-Peninsular Car, First 6s.....	115
Otis Elevator, Common.....	35
Otis Elevator, Preferred.....	88½
H. R. Worthington, Common.....	50
H. R. Worthington, Preferred.....	114
Cramp's Shipyard Stock.....	76
Pratt & Whitney, Common.....	34½
Pratt & Whitney, Preferred.....	35
E. W. Bliss, Common.....	136
E. W. Bliss, Preferred.....	125
U. S. Projectile.....	95
Barney & Smith Car, Common.....	..
Barney & Smith Car, Preferred.....	..
Pressed Steel, Common.....	52
Pressed Steel, Preferred.....	87
Park Steel Co.,.....	100
American Car & Foundry Co. Common.....	28½
American Car & Foundry Co. Preferred.....	66

The American Smelting & Refining Company.

The directors of the American Smelting & Refining Company of New Jersey, who have recently been formed with a capitalization of \$65,000,000, met at the office of Simpson, Thatcher & Barnum last Saturday afternoon for organization. E. W. Nash of the Omaha & Grant Smelting Company was elected president. The directors are Walter S. Gurnee, H. H. Rogers, John G. Moore, Leonard Lewisohn, E. W. Nash, A. R. Meyer, D. H. Moffat, M. D. Thacher, J. B. Grant, Guy C. Barton, Dennis Sheedy, N. Witherall, R. S. Towne, A. Ellers and Barton Sewall. A committee was appointed to report on further organization. The company have opened offices in the Empire Building, 71 Broadway, New York.

The State Superintendent of Public Works has decided that it will be impracticable to open the New York canals before April 24, owing to the fact that the ice is not yet out of all the waterways. Moreover, the severe climatic conditions have tended to delay the opening of lake navigation this season.

The Attorney-General of Arkansas has entered suit in Little Rock against a large number of foreign corporations for violation of the State Anti-Trust law. Each corporation is sued for \$10,000.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, }
New York, April 12, 1899. }

With the market in its present excited condition and deliveries so far distant on new tools, machinery merchants in this city are paying considerable attention to second-hand tools. Good second-hand tools have been in great demand during the last few weeks. The tools which have sold most readily are those types which have been the scarcest in the new tool market. This apparently indicates that the purchasers were forced to buy them on account of requirements at their works, which were so urgent that they could not wait until time of delivery which the builders of new tools specified. There are, however, as we have previously stated, quantities of screw machines and bicycle machinery which are almost new and which are really a drug on the second hand market. In large, heavy tools even the second hand stocks are about depleted. Dealers are following up sales of equipments of plants which have recently suspended operations, and such equipments are now bringing excellent prices. We have heard of two such sales during the last week which have received general attention on the street. W. S. Ammon of Reading, Pa., we understand, sold the entire equipment of a dismantled engine works. This outfit included various choice tools. It is also said that the equipment of the Armington & Sims Engine Works of Providence, R. I., has been sold and that various merchants in this city were among the purchasers. It has been the taking advantage of such sales as these that has kept the second-hand warehouses in this district well stocked, and has placed the dealers in a position to supply the wants of the trade.

The New York Air Brake Company of Watertown, N. Y., have been purchasing large tools in this market during the last week. It is said that further purchases are to be made. They placed a large order with Manning, Maxwell & Moore, which included several 43-inch Gould & Eberhardt drill presses.

We understand that the equipment is now being purchased for the new paper mills which are being erected in Maine by the recently organized Great Northern Paper Company. Garrett A. Schenk, whose headquarters, when in New York, are in the offices of the New York & Pennsylvania Company, *Times* building, is attending to the purchasing. The contract for the engines for this plant is said to have been awarded to the Harrisburg Foundry & Machine Company of Harrisburg, Pa. It is said that the order called for ten engines of 400 horsepower each. Each of the engines will weigh about 30 tons. The plant will be so constructed as to allow for the ultimate production of 10,000 horsepower. The boiler order was given to the Cahall Sales Department, Boston.

Amino Castaldi, representing Adler & Eisenschitz, machinery merchants, of Milano, Italy, is in this city. He expects to remain in this country two or three months, and besides purchasing considerable machinery, he will arrange for the taking of the Italian agency for various American machinery builders. He is stopping at present at the Hotel Martin. His mail address is Italian Consul at New York.

The West Virginia Pulp & Paper Company have awarded the contract for the 3000 horse-power boiler plant which is to be installed in the new plant that they are building at Caldwell, W. Va. The Edgemoor Boiler Company are said to have received the contract. The present plant of this company is located at Piedmont, W. Va.

The contract for the equipment of the entire boiler plant of the new Ninety-sixth street power station of the Metropolitan Street Railway Company with mechanical stokers was awarded to Westinghouse, Church, Kerr & Co. Roney stokers will be installed. This company will also equip the boiler plant of the big Third avenue power station with Roney stokers. These are to be the two largest power stations in the world. Westinghouse, Church, Kerr & Co. were awarded the contract for a 280 horse-power gas engine which will operate a dynamo for the Consolidated Gas Company of New Jersey and furnish electric lights for Long Branch, N. J.

William B. Pollock & Co. of Youngstown, Ohio, were awarded the contract for the construction of the 335-foot steel stack for the Nicholas Chemical Company, Laurel Hill, near Long Island City, N. Y. The chimney will be self supporting, standing without the usual guy lines or building supports.

W. S. Rockwell & Co., furnace engineers, 26 Cortlandt street, New York, have just been awarded several good orders for annealing furnaces. An order for 12 furnaces has just been awarded them by the United States arsenal, Philadelphia, and the navy yard, Washington. These will be used for annealing cartridges. Orders for similar work have also been given to the company by

the Scovill Mfg. Company of Waterbury, Conn.; the Detroit Brass & Copper Company of Detroit, Mich., and the American Electrical Works, Providence, R. I. The furnaces sold to the latter concern will be used for annealing copper wire.

Bids are being received by the Chihuahua & Pacific Railroad, 80 Broadway, New York, for several steel bridges. Among these are one 12-meter plate girder deck, one 25-meter span and one 30-meter span of the same type.

The Eastwood Wire Mfg. Company received through their New York office, 120 Liberty street, Franklin Williams, manager, an order for the high pressure valves and steam fitting to be used in connection with a large electrical plant which is to be erected at Buenos Ayres. The work is going through under the direction of the Allgemeine Electricitäts Gesellschaft, Berlin, Germany. This is the German General Electric Company. Watertown engines will be installed.

The Northern Engineering Company, 39 and 41 Cortlandt street, have just been awarded the contract for the equipment of the 1000-light isolated plant of E. & H. Levy, Fifty-fifth street and Eleventh avenue, and the printing establishment of J. W. Pratt & Co. The latter installation includes independent motors for 12 printing presses.

Burham & Granger, 95 Liberty street, received the contract for the power plant to be constructed in connection with the new Cunard Line piers, foot of Jane street, New York. They have also been awarded the contracts for the 250-foot stack for the Rupert ice plant and a 150-foot stack for the Brooklyn Navy Yard.

On April 18 bids will be opened at the Boston Navy Yard for a quantity of machine tools.

Schuchardt & Schutte report at their New York office that they have made shipments of machinery to Europe during the last week amounting to more than 490,000 pounds. There were more than 300 cases of machine tools in the shipment.

Post & McCord were awarded the contract for the structural steel to be used in the construction of new buildings in Newark, N. J., by the Prudential Insurance Company. There is upward of 3000 tons of this material.

The Boston Machinery Market.

Office of *The Iron Age*, 33 Mason Building, }
Boston, April 10, 1899. }

Reports from all lines of machinery and construction work are of one tenor. They indicate that the industrial situation is not only in good shape for existing plants, but that considerable planning for additions and new establishments is in progress. Small tools are in excellent demand, and manufacturers and dealers are obtaining higher prices thereon than they were a few weeks ago, thus bettering the tone of the market from their standpoint and affording them a profit which the advances in raw material menaced.

With the starting up of lumber mills in New England, and decided firmness in the value of all lumber plant products, the market for wood working machinery is improving. The manager here of the big combination states that business is very much broader, the gain in recent weeks having been especially noticeable. Stocks of standard machines have been cleaned up and orders have to be taken now for future delivery on everything, with delays of weeks in some cases for the filling of requisitions.

The horseless vehicle industry is looming up in large proportions. The Pope Mfg. Company have been adding to their equipment quite steadily for a long time, and within the past fortnight more new tools have been installed at the manufactory by Hill, Clarke & Co. At Greenfield, Mass., R. N. Oakman of the A. F. Towle Son Company is fitting up a new plant, and in Avon, Mass., the Cable Cycle Company, who have several patents, including one on a spring tire, have secured the former Peach shoe factory, and will go into the manufacture of vehicles and the furnishing of heat, power and light, and apparatus therefor. Stanley Bros. of Watertown are also busy in the steam and gasoline motor vehicle line, with an excellent run of orders. These and other smaller concerns are doing constantly increasing business, and are in the market right along for special tools and machines for their requirements.

Another field that promises much for the current season is the electric railway business. Foremost in this respect are the Boston Elevated Railway Company. During the past week the management have placed contracts with the Pencoyd Iron Works for a large amount of structural steel, the sum involved being in the neighborhood of \$400,000. Nearly all of the main line is now under contract, but the stations remain to be provided for. The Boston Bridge Works are progressing with the elevated structure on Charlestown Bridge,

having obtained the contract a few weeks ago for that portion of the line.

The elevated railway not only contribute to the prosperity of the steel construction concerns, but are also to give out before long some valuable contracts in connection with the new power house of the company, for which property was secured in the last week of March. This is to be located on what is now known as Lincoln's Wharf. It is one of the most valuable estates in the city, and the railway officials are to pay about \$250,000 for the site and the old buildings on it, mostly wharf sheds, which will be demolished. It is the intention of the company to erect here a power plant and coal pockets, with full equipment like that of the big plant on Albany street. Being right on tidewater and having fine wharf privileges, the location is all that could be desired. It will enable the company to receive coal by vessel on the premises, and thus save the expense of handling and teaming. The wharf is near the ferry and proposed tunnel to East Boston, and will be available for the needs of the line of transportation to that section of the city.

New electric light plants are contemplated by the municipal authorities at North Attleboro, also at Amesbury, both in this State, and local committees have the matter in charge. Electric railways are projected at Derry and Exeter, N. H., and in the former place a new power plant will be required. At Fairfield, Maine, the Seabacoek Mfg. & Power Company will equip with a power and lighting plant.

Cotton mill increases are booked at Fall River by the Stevens Mfg. Company, and the Parker mill directors have voted to add \$300,000 to the capital stock and erect a new mill in Rhode Island. At Biddeford, Maine, the Pepperell and Laconia mills will be added to. The Hargraves' plant in Fall River is also to be enlarged. The old mill at Manchester of the Amoskeag corporation is giving place to a fine new structure. Shafting and other machinery and equipment will be needed in all these buildings.

The extensive plant of the Somersworth Machine Company, at Dover and Salmon Falls, N. H., has been on the market for several weeks, but no buyers have bid up to the appraised value of the concern as yet.

The Niles Tool Works have installed a large boring mill in the plant of the Bath Iron Works during the past week. At the Boston office of the Niles Company the orders for machinery and tools have been steady and of good volume thus far this year and the outlook continues good.

Good business is reported by Hill, Clarke & Co. One of the orders received this week by the concern comes from a town in the northern part of Sweden and is for a 16-foot planer, to weigh 80,000 pounds. A cable order was also received for a large boring mill to go into the machine shop equipment of the Baroda Railway of Bombay, India. Both foreign and domestic demand are lively. Mr. Clarke notes particularly the increase of inquiries from motor vehicle makers.

Lake Iron Ore Matters.

DULUTH, MINN., April 9, 1899.—The strike of the Mineral Mine Workers' Association, that looked quite threatening a few days ago, seems to be practically over, for the present at least. The strike was for nothing other than the recognition of the union and no question of pay was involved. The union wanted all miners employed at Ishpeming to join and proposed to force every man in. To do this they asked the mining companies to aid them, the absurdity of which position is hardly worth pointing out. Many of the union men have gone back to work and others soon will, so that the mines will run steadily. They all had large stock piles accumulated during the winter and some were about at the end of their stock pile room, so that a few days of lay off would not have been uncomfortable. The miners' union is not strong anywhere on the ranges but at Ishpeming, and stringent steps will be taken to keep it out elsewhere. There are no present prospects of any strike of consequence anywhere else. Most of the striking men are Cornishmen and they are leaving in numbers for the copper country, where there is ample employment.

As to navigation, there is a hint of summer in the air, but the ice is melting but slowly; indeed in March it grew steadily. From a few mines the movement to docks has begun, but that is nothing of an indication, as these mines are at the end of their piling room and have an ore that is unusually dry. There will be little shipment for some weeks. It will be remembered that a year ago to-morrow vessels were departing from the head of Lake Superior ports. To-day ice extends in an unbroken sheet 150 miles out on the lake.

It is expected that the American Steel & Wire Company will soon let contracts for the construction of two

large steel tow barges for the ore trade, to be completed next spring, and that the Federal Steel may do the same thing. Chicago works of the American Shipbuilding Company will probably get most of them. Steel & Wire have about closed negotiations for the ships of the Cleveland Rolling Mill Company, five medium sized steamers and a barge, and the ship manager of that company, Mr. Richardson, will manage the fleet of the Steel & Wire.

Some weeks ago this correspondence went on record with a price of \$3 for Mesaba Bessemer and said it would come quickly. This week some 10,000 tons of a Mesaba ore, guaranteed 61 iron, under 8 in moisture and under 35 in phosphorus, has sold at that price. It is not as good an ore as Fayal, whose entire output went shortly after prices were fixed at \$2.40, or Franklin or several others, but is a very desirable ore. It was the final 10,000 tons that the mine can by any possibility mine this year. There are a good many ores that would to-day bring close to a dollar more than they sold for not long ago. Some years the mining companies lose by not selling soon enough and others they lose by selling too soon. This year is one of the latter. Probably one of the big Mesaba mines, whose output was all cleaned out at the very first, stands to lose \$4 000,000 by its hurry to sell. But it had the alternative of letting a full traffic for a co-ordinate railway be jeopardized, and that was not to be thought of. This question of getting traffic for the roads has had much to do in the past with sales of ore that have been regarded as nothing short of criminal by rivals in the ore trade who have not realized fully the necessities of the road and mine combinations.

There is to be a great activity in non-Bessemer this year, and those of Mesaba especially are having a demand that is new to them. Of these ores there will be more mined and sold than in any past season. One interesting sale of this class of ore was made a few days ago. It is an ore that could not have been given away 12 months ago and is from an open pit property. The sale was at \$2.40 and the ore runs about 60 iron and as high as 0.110 phosphorus. Old range non-Bessemer are in demand also, and the siliceous properties of the Cascade range ought to make a very fine showing. The Vermillion non-Bessemer hard ores have sold very largely and at satisfactory prices.

The Great Northern road, that recently paid \$4,000,000 for the Mahoning mine, the Duluth, Mississippi River & Northern road and the remaining Wright & Davis interests in the Minnesota ore districts, is to become an active and energetic competitor for traffic on the Mesaba. It has surveyed east 22 miles from the present terminus at Hibbing to the Saunty property and is now getting its right of way for a line. It has made a contract with the Steel & Wire for hauling Saunty ore and expects to have other mines at its disposal. The road is increasing the capacity of its dock by raising the shore end and will, probably next year, largely add to the dock. The road will have a haul from Saunty mine to its docks of about 140 miles against a competitive haul by the two other ore roads from the same point of from 65 to 70 miles. It is safe to say that Jas. J. Hill will be no weak assistant in the matter of keeping ore rates where they are now, at 80 cents.

The Oliver Iron Mining Company have notified the various roads that haul their ores as to the amounts they expect to deliver them this season. The Carnegie Steel Company's share of this is said to foot up to about 4,000,000 tons, of which about 1,500,000 will come off the Mesaba, 600,000 from the Vermillion, 1,300,000 from the Gogebic and the rest from the Menominee. This will be a far larger business than any mining company ever handled and will mean an output of steel of not far from 2,200,000 tons.

The Duluth Furnace Company have been organized by J. M. Thomas and his associates to operate the Duluth blast furnace recently bought by them for about \$50,000. The furnace is to be rebuilt, its blowing capacity greatly increased and its output made about 225 tons a day. It is generally expected that the opening of this furnace and other iron manufacturing deals now pending at the head of Lake Superior will bring that point quickly forward. The large car works of the Duluth Mfg. Company, idle for some years, are on the point of resumption, and the Ironton Steel Company's works, in which the patented Gray rolls are installed, are quite likely to be active shortly. The patents covering these rolls are now understood to have become the property of a German syndicate.

Stripping operations on the Mesaba range have never been so active as they will be this summer, and one firm, the Drake & Stratton Company, will have more than 1000 men busy at various properties. They will run from eight to ten steam shovels, and a very large equipment of locomotives and cars. Other contractors are also busy, and most of the jobs are now under way. The D. & I. R. Road has begun work in double tracking its line for 20 miles north of its docks, and will lay 100 pound steel on the line. It will also add much track elsewhere. Other range roads are adding side tracks and putting their lines in excellent shape.

D. E. W.

San Francisco News.

There is little to record in market matters beyond a good trade for the present season of the year. The activity in the various branches of the business continues. This activity arises from two causes—the splendid outlook of the State for crops and the firm condition of Eastern markets. The weather has been everything that the most exacting could require, a few damp, one partially wet and some cloudy days, the rest being fine, sunny days—grand spring weather. In fact the crops are in some instances in a more forward condition than in other years, as new cherries have already made their appearance. It had been feared that the rains would be followed by frosts, which would injure the fruit crop, but although some damage has been done in a few places, the benefits in others will far more than outweigh the damage. And besides the crops there have been great benefits resultant to the mines from the rains, and altogether the State is on the verge of such prosperity as it has not seen in a long series of years. Hitherto we have not done a great deal till the fall trade opened and the condition of the crops was certain beyond a peradventure, but I predict that it will be different this year, and even the usual lull prior to the opening of the fall business may not occur. The Clearing House still continues to show a marked increase for this year over the past. Government purchases on account of the army in the Philippines account for a part of this, but only for a part; the rest must be traced to the improving business of the year itself. Indeed, the increase has been unprecedentedly heavy, and, to judge from the activity noticeable in them, the hardware, iron and steel houses participate in the improvement to the fullest extent. Imports by rail particularly have been quite large in the main lines embraced under this general head, and there do not appear to be any signs of a let up in the volume of freightage coming over the Central and Southern Pacific roads, not to speak of that which we receive by the Canadian Pacific and Sound steamers, as well as the contributions that we get over the Oregon line through the Northern Pacific. There is also considerable activity in the importations via Panama, and altogether the city is full of merchandise by all those various avenues of introgression. As a rule prices, where not stationary, are advancing. In tin plate the market is higher than it has been in a very long time. The American syndicate has put up the price of coke tin plate to \$5 per box. This is an increase of over \$1.50 in a comparatively short space of time, and no one can tell whether the end is nigh. Of course a part of this increase is due to the general appreciation in the hardware, iron and steel markets, but it is not all. There is no English tin plate in first hands in the market and there has not been for a while, so that the syndicate at this end has things all its own way. Pig tin is about as last advised. The imports of tin plate by sea for the first two months of the year were 66,237 boxes; those of pig tin were 6780 ingots, altogether in February. The imports of pig iron for the first two months of the year have been 1246 tons. In the pig iron market there have been no special changes very recently, but both English and American hold their own and are likely to appreciate should there be any change. There is likely to be a very good demand for pig scrap this year and our foundrymen will doubtless be much busier than they were last year. In 1898 the output of our foundries was altogether in excess of that of 1897 by about 15 per cent., and this is a good increase for one year. This, taken in account with the activity of our shipyards, is a healthy state of things to record in the manufacturing branch of the trade, and I have no doubt that 1899 will be as far ahead of 1898 as the latter was of its immediate predecessor. True, we have the building of three big steamers, but we have secured that of three others, and in regard to the first there are conflicting stories abroad. It is now said that the complaints of the action of the Spreckels Bros. were dictated by professional jealousy, as the *Call*, one of our leading dailies, is owned by J. D. Spreckels and the *Examiner*, where the comments on the action of the Spreckels first appeared, by Hearst, between whom there is a very bitter rivalry. Such at least is the opinion of one of our leading foundrymen expressed to me the other day.

Since I began to write this letter quite a turn has been made in this market as a result of the fire on the premises of Miller, Sloss & Scott. The extremely sudden and unexpected calamity attracted general sympathy to the house, and their neighbors in the same line, of whom there are quite a number round about, at once rallied to their assistance. They had a large and extensive line of orders to fill and this assistance was extended to them in a truly practical manner in enabling them to fulfill their engagements just as if nothing had happened. But the gods help those who help them-

selves, and the members of the burned out firm lost no time in getting things into shape so that they should be enabled to fill their own orders. So those outside of hardware circles and some of those inside were surprised to learn that Miller, Sloss & Scott had purchased the business of the Hawley Hardware Company of Market street. The Hawley Hardware Company themselves have been one of the old stand bys. They used to be Marcus C. Hawley & Co. However, Mr. Hawley died not very long ago, so that this sale is, after all, not much of a surprise. This morning Miller, Sloss & Scott's signs were on the building of the Hawley Hardware Company. There used to be a good many more hardwaremen than there are to-day and the business seems to be gradually getting into fewer hands.

Nails are now at high water mark. The jobbing rate for wire is \$3.40, the base; cut nails, 20 cents less; in 50-keg lots, 30 cents less; carload, ex-warehouse, 40 cents less; carload, from East, due at California terminals, 50 cents less. There is at present and for the season rather a good demand at these rates. There were no wire nails made last year at the establishment that during the two previous years made the largest quantity, and, in fact, the manufacture has almost ceased in this State. Interest in the copper revival has taken hold of the people in this State. All the copper indications are narrowly scanned by those who are posted in such things. There is a large deposit of copper ore quite close to this city across the bay in Marin County which is about to be placed on the market. I sent some points concerning it to *The Iron Age* a couple of years ago, but interest in the matter has lain dormant till now.

J. O. L.

Cold Rolled Shafting Advanced.

A meeting of the Cold Rolled Shafting Manufacturers' Association was held in Pittsburgh on Friday, April 7. There was a good attendance, the following concerns being represented in person: Union Drawn Steel Company, Beaver Falls, Pa.; Jones & Laughlins, Limited, Pittsburgh, Pa.; Finished Steel Company, Youngstown, Ohio; Mahoning Valley Iron Company, Youngstown, Ohio; Gautier Steel Department Cambria Steel Company, Johnstown, Pa.; Cumberland Iron & Steel Shafting Company, Cumberland, Md.; Brightman Mfg. Company, Cumberland, Md.; Fitzsimmons & Co., Cleveland, Ohio, and American Steel & Wire Company, Chicago. After an exchange of views on present conditions of the shafting business, it was decided that on account of the increased cost of raw material, together with the heavy demand, an advance in prices should be made, and the following was agreed upon: 40 per cent. off list in less than carload lots; 40 and 5 per cent. off list in carload lots delivered to all points in "Base Territory." It should be noted in this connection that the minimum weight in carloads is 30,000 pounds, and the discount of 40 and 5 per cent. applies only to that quantity or over. C. C. Briggs of Jones & Laughlins was chairman; F. W. Beegle of Union Drawn Steel Company, Beaver Falls, Pa., was secretary.

In regard to the labor trouble at the plant of the Ohio Tube Company, Warren, Ohio, we are advised that the firm gave the men an advance of 10 per cent., while some of the employees asked for 15 per cent. About one-third of them went to work and the balance afterward returned at the same rate of wages, and it was understood that the concern were not to discharge a man who had worked during the time the others were on strike. After coming back to work they concluded to make a test of one of the men, and demanded that he be discharged, but instead of doing this the firm allowed them all to go. At the present time the plant is idle.

The "Albatross," a new type of torpedo boat destroyer, just built by Thornycroft & Co., at Chiswick, near London, attained a speed of 33 knots per hour on her official trial trip a few days ago. This is the highest speed reached by any war vessel. The "Albatross" is 227 feet in length and 21 feet beam, with a draft of 8½ feet.

The American Steel & Wire Company are making phenomenal earnings. Their net earnings in February are put at \$1,059,768, while it is stated that March exceeded \$1,500,000.

The formal exchange of ratifications of the treaty of peace between the United States and Spain was made at Washington on Tuesday, M. Cambon, the French Ambassador, acting on behalf of the Spanish Government. This final ceremony re-establishes peaceful relations between the two countries.

HARDWARE.

Condition of Trade.

DURING the past week there have been comparatively few advances. Indeed, since the opening of the month the market has been in a more settled condition than since the time when the upward movement in prices began, bewildering the trade by the number and suddenness of advances. The demand has also quieted down somewhat, which is easily accounted for by the fact that the large trade purchased liberally where they could succeed in getting in orders before the advances took place, and are now awaiting developments, intending to get rid of a great part of their goods before paying the new prices. There is, however, a good deal of buying and negotiating in lines which have not as yet advanced, and where they are held at low prices there is a feeling that they are a safe purchase. In this class of goods are included a great many minor articles in Shelf and Miscellaneous Hardware.

The trade are realizing that the real test of the market, and the determining of the question as to whether the range of prices will in future be materially higher than for the past year or two, will come after the present flurry of advances, when the capacity of mills and factories has caught up with the sudden demand for their products.

Chicago.

(By Telegraph.)

The movement of Shelf Hardware is not quite so heavy. The backwardness of the season is now beginning to have its effect on the demand for seasonable goods, which has up to this time been so large. It will probably be three or four weeks until spring weather will enable the stocks in dealers' hands to be cut down. In the meantime the milder weather is causing very bad roads in many portions of the West, thus interfering seriously with the ordinary country traffic. Indications are also making themselves manifest of buyers having overstocked in various lines who are now making efforts to unload. This is seen among some manufacturers who have purchased more than their requirements and are now trying to sell a part of their stock to the Hardware trade, some for early shipment and some for future delivery. This may cause irregularity in prices if the general consumption of goods falls below the large proportions to which the country has lately grown. A strike among the local cornice men has cut down the city trade on Galvanized Sheets, but the country trade is fairly active. The most important advance of the week has been on Stove Boards, which are 20 per cent. higher. Manufacturers have made this advance because they have already used up their stock of Plates bought at low prices. A great many Stove Boards have been sold for next fall's shipment, and orders are still coming in for them. Refrigerator manufacturers report a large business, exceeding anything in their previous history.

St. Louis.

(By Telegraph.)

There is a good movement noted in outdoor Tools, such as Hoes, Rakes, Spades, and some interest is being taken in Lawn Mowers. Garden Hose and Reels are meeting with inquiry through the first few days of spring the territory adjacent to St. Louis is experiencing.

The condition of the abominable country roadways is holding back many buyers, and even traveling men find it difficult to reach off-the-road customers. Hardwaremen present to-day at a meeting for the organization of a Missouri retail Hardware association speak hopefully of the trade conditions and state that the wheat crop may yet prove good. All lines of Hardware seem to be moving well, and we cannot find that retailers have stocked up on a speculative basis. New goods apparently are being laid in as the consumers' demand is known. Factories still report being behind orders, and jobbers find difficulty in filling wants for numerous articles, among which is mentioned Tinware. Some objection is raised against advancing prices, but makers claim they must be moved up further if the cost and scarcity of raw material continue. Advances are coming in on the Hardware articles made by smaller concerns, and Builders' Hardware, which is at a low figure now, shows a stiffening tendency, due to cost of raw material being greater than the last reported advance on finished Hardware. Veteran salesmen and new travelers have an equal strain in keeping posted as to prices, and jobbers are sending out new discount sheets almost daily. Broadly, the jobbing trade have full confidence in higher prices for balance of the year. Screen goods are in such demand that it is puzzling to keep up stocks. The trade is reaching out for all Wire Cloth to be had and factories seem crowded for the plain Wire. Wire Nails are in moderate demand, but Barb and Plain Wire and Poultry Netting are moving well. An antcipating call is felt for fall goods and Stove Material, Bolts, Elbows, Pipe and Sheet Iron. Southern trade is slackening up, as is usual at this time of the year, but collections are good.

From E. T. Smythe.

To the Editor: It used to be a common expression with us young fellows who sailed in the yacht races up on Long Island Sound, when we saw a boat bucking against the tide, "that she wouldn't get home in company with the first families," meaning that the skipper was either not a good sailor or that he was using poor judgment, and the skippers who studied the tide and didn't try to go against it were the ones who got in ahead; they were at anchor, had their sails tied up and were enjoying themselves on shore, while the other fellow was still out there cussing his luck and wondering how it was that the rest got in so far ahead of him. Now, while I do not intend to give you a dissertation on yacht racing, I think I have often come across business men whom I thought were very much akin to the fellow who was bucking against the tide. We have heard from them such expressions as these: "We are not paying any advances," or, "They can't hold these advanced prices," &c. I think some of our good friends overlook the fact that many manufacturers have for some time past been selling leading items in their respective lines at an actual loss, trying to hold their business together and hoping that some time there would be a turn in the tide; and I believe that the tide has turned at last. One of the brightest and most successful jobbers in the trade told me a short time since that he had recently sent a circular letter to each of his travelers saying: "You have not begun to see prices of general Hardware advance as yet; wait until the manufacturers have to pay the advanced prices for raw material;" also that he wished them in future to stop writing in what — Hardware Company of — were doing, on this or that line of goods, but to take their information only

Annealed, \$2, base. Jobbers quote small lots from stock at 10 cents per 100 pounds above these prices.

St. Louis, by Telegraph.—A rather better action prevails in Barb Wire and the advent of settled weather conditions will have a noticeable effect on trade. Prices have not changed and makers quote jobbers in carload lots at \$2.25 for Plain, on cars St. Louis. Galvanized is furnished at \$2.65. Small lots from store are quoted by jobbers at an advance of 15 cents per 100 pounds.

Pittsburgh.—The Barb Wire market is in the same condition as noted last week. Demand is heavy and large orders are being constantly entered. The indications are that this season's trade will be the heaviest the Barb Wire business has ever known. We quote: Painted, \$2.10; Galvanized, \$2.50; to small buyers in carload lots, \$2.15 for Painted; Galvanized, \$2.55; to small buyers in less than carload lots, Painted, \$2.25; Galvanized, \$2.65, f.o.b. Pittsburgh.

Smooth Wire.—No change has taken place in quotations or in the general features of the market. The price for Galvanized is \$2.25, base, to large buyers, and for Plain \$1.85, f.o.b. Pittsburgh or Cleveland. The demand is very active. In fact there is a good deal of complaint that shipments are not made with sufficient promptness to meet the requirements of the trade.

Pittsburgh.—The volume of business is unusually large and the mills are turning out the largest tonnage in their history. All indications point to the biggest tonnage in Smooth Wire this season that the trade has ever known. We quote at \$1.85, base, to large buyers, f.o.b. Pittsburgh or Cleveland, with 40 cents advance for Galvanized. To single carload buyers an advance of 5 cents is charged.

Crowbars.—A further advance has been made in the price of Steel Crowbars and the market is now represented by the quotation of $2\frac{1}{4}$ to $2\frac{3}{4}$ cents, 10 to 40 pounds, the lower figure being for round lots.

Steel Wedges.—Higher prices are announced on Steel Wedges and manufacturers' prices are represented by the following quotations, concessions being made on large lots: Oil Finish, 2.85 cents; Axe Finish, 3.10 cents.

Coil Chain.—The manufacturers of Coil Chain have made a further advance in prices and the market on this line is decidedly firm. Present quotations are as follows for full casks in less than carloads, terms f.o.b. factory:

Inch.....	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Cents.....	6.35	4.85	3.95	3.40	3.25	3.15	3.10	3.00
Inch.....	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Cents.....	3.00	2.90	2.90	2.80	2.80	2.80	2.80	2.80

Manufacturers experience a good deal of trouble in getting raw material and most of them are far behind their orders and in receipt of frequent letters hurrying up delayed goods. This is one of the lines in which something of a scarcity is being felt.

Files.—With an increased volume of business the File market shows very little, if any, improvement in prices. While some of the manufacturers have announced the withdrawal of outstanding quotations the general condition remains as before. Alluding to the fact that there has been no advance in the selling price a well-known manufacturer says:

Possibly this is an unmixed evil, but it enables the File manufacturers who have spent time and money in cultivating export trade to retain it, with the hope that Steel and Iron manufacturers will presently regain their senses and not kill any of the geese that lay eggs (even if they are not golden).

Cordage.—Another advance of $\frac{1}{4}$ cent in the price of Rope has been announced, present quotations being on the basis of $8\frac{3}{4}$ cents for 7-16 inch and larger Sisal, and $9\frac{1}{4}$ cents for Manila Rope of corresponding size. Western prices are the same as those in the East, with the addition of $\frac{1}{4}$ cent to cover freight. The following are manufacturers' quotations:

	Per pound. cents.
Manila, 7-16 inch and larger.....	9 $\frac{3}{4}$
" " $\frac{3}{8}$ inch.....	10 $\frac{1}{4}$
" " $\frac{1}{2}$ and 5-16 inch.....	11 $\frac{1}{4}$
Sisal, 7-16 inch and larger.....	8 $\frac{3}{4}$
" " $\frac{3}{8}$ inch.....	9 $\frac{1}{4}$
" " $\frac{1}{2}$ and 5-16 inch.....	9 $\frac{3}{4}$
" Lath Yarn.....	8 $\frac{3}{4}$

Manila Tarred Rope, 15-thread, is quoted $9\frac{3}{4}$ cents, as is also Manila Hay Rope, medium. The price of Jute Rope is $5\frac{1}{2}$ cents.

Chisels.—A moderate advance has been made by the manufacturers of Socket Chisels, &c., the regular quotation on which is now discount 75 and 10 per cent.

Heavy Hammers.—An advance of about 10 per cent. has been made by the manufacturers of Heavy Hammers. The market on this line is characterized by a firm tone.

Picks and Mattocks.—The manufacturers have advanced prices on Picks and Mattocks, and the market is represented by the quotation of discount 70 to 70 and 10 per cent.

Building Papers.—The market in Building Papers so far has not been affected by the numerous advances, but in Tarred Papers for Roofing, &c., the cost of materials has advanced, and this condition is likely to reflect itself in the price of the manufactured article in the near future. The tendency in Building, Tarred and Sheathing Papers is toward higher prices rather than a decline, and one prominent manufacturing company express the belief that none of the commodities named will be bought for any less than present prices this year.

Binder Twine.—Manufacturers have made an advance in the price of Manila Binder Twines of $\frac{1}{4}$ cent per pound, while Sisal Twines remain without change. The following are the present carload prices, f.o.b. Eastern factories, with an advance of $\frac{1}{4}$ cent per pound for less quantities:

	Cents.
White Sisal, 500 feet to pound.....	9 $\frac{3}{4}$
Standard, 500 feet to pound.....	9 $\frac{3}{4}$
Manila, 600 feet to pound.....	10 $\frac{3}{4}$
Pure Manila, 650 feet to pound.....	10 $\frac{3}{4}$

Glass.—The trouble with the semi-skilled labor in Glass factories, to which reference was made last week, and which up to that time had caused some factories to close, has been adjusted satisfactorily, and a number of the factories have again been started. This will enable the American Glass Company to accumulate larger stocks by the end of the fire than seemed probable a week ago. The combine is still working for a consolidation of the independent factories with the proposed larger combination which they hope to perfect by next fall, and are meeting with varied degrees of success. It is understood that several independent firms have given options. Reports indicate considerable irregularity in the prices asked by jobbers for Window Glass in different parts of the country, small lots in some cases having been purchased for less than the American Glass Company's regular trade prices for the largest quantity. American Glass Company's prices to the regular trade are unchanged as follows:

Districts.	A.	B.	C.	D.	E.
5000 boxes or more.....	85 & 10	85 & 10	.....	.....	85 & 10
Carloads.....	85	85	85 & 5 & 2 $\frac{1}{4}$	.....	85
3000 boxes or more.....	85 & 5	85 & 5	.....	.....	85 & 5 & 2 $\frac{1}{4}$
1000 boxes or more.....	.....	.....	85 & 10 & 2 $\frac{1}{4}$	.....	.....

These prices are subject to freight allowance.

Paints and Colors.—**White Lead.**—White Lead in oil is in good demand for consumption, especially in the West, where the revival of trade is more pronounced than in the East. No change has been made in prices, which are as follows: In lots of less than 500 pounds, $6\frac{1}{4}$ cents; 500 pounds or over, $5\frac{1}{2}$ to $5\frac{3}{4}$ cents.

Oils.—**Linseed Oil.**—Shipments of Linseed Oil on contracts have been the most pronounced feature of the market during the past week, although orders for a fair amount for prompt delivery have been taken. The market has been firm at former prices, as follows: City Raw in lots of less than five barrels, 48 cents per gallon; five barrels or more, 47 cents per gallon; out of town brands, 1 cent less. The usual 2-cent advance per gallon is obtained for Boiled Oil. Calcutta Oil is quoted at 58 cents per gallon.

Spirits Turpentine.—Receipts of Turpentine at New York and Savannah have been light. As a consequence higher prices prevail. The new crop has not come in as rapidly as was anticipated, and the downward tendency of prices has been at least temporarily checked. Local stocks are light, and sales have been restricted to

small lots. The market is firm at the following quotations: 44½ cents for Southern and 45 cents for machine made barrels.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Opposed to Reduction in Freight Charges.

Many of our readers have expressed themselves as in favor of the movement inaugurated by the Merchants' Association of New York, with a view to securing a substantial reduction in express charges. The following letter from a merchant in Nebraska takes a different view of the subject:

I note in *The Iron Age* that heavy pressure is being brought at the various association meetings, &c., for a reduction in express charges.

This reminds me of the strong effort put forth some years ago for a reduction in mail rates on merchandise, and retailers used all efforts to push the matter until it was discovered that Montgomery, Ward & Co. and several big catalogue houses were pushing the matter also.

The retailers at once saw that what was good for the mail order houses was certainly a bad thing for the retailers, and these same parties are again pushing for a reduction in express rates for the same reason.

As the thing now stands, these express rates are a protective tariff to the retailer on all small goods that are sent out by mail order houses by express, and a reduction in this tariff would greatly increase the amount of goods sent out by these houses, and the retailer would get no lower rate than the consumer.

Suppose a retailer ships in by freight a Shot Gun, costing him \$8.50 and freight 10 cents; total, \$8.60; he sells this for \$10.

Suppose a catalogue house in Chicago sells this Gun for \$8.50, and express costs \$1.50, they have no advantage over retailer, but cut your express charge in two and your retailer would have to meet the price, \$9.25.

This is but a sample, but many others could be given.

If a retailer keeps up his stock properly in these days of fast freight he can stand the express charges now in effect, and I think he would find that by a heavy reduction in express rates he would lose dollars in trade where he would save cents in express.

These are but opinions of mine, and you can publish or not, as you wish. We do a big Hardware business and think we know the way things are here in this section of the West, and should think the closer to large cities the more it would apply.

Hardware Premiums.

In the following letter from a merchant in Iowa attention is called to the way in which Hardware articles, some of which are well-known jobbers' special brands, are given away as premiums:

We notice in our grocery stores flaming posters from the great tobacco factories, offering a large number of Hardware articles (such as Razors, Knives, Shears, Bicycles, &c.) free with so many "tags" returned. Well-known trade brands of leading wholesale Hardware houses are thus offered to the direct injury of the trade. Would like to know what *The Iron Age* readers think of this course. We believe they should stop it or we should all quit buying of them.

Weights of Carriage Bolts.

The following inquiry from a Hardware merchant in Wisconsin is referred to our readers. Perhaps some

in the trade are familiar with such a list as our correspondent inquires for or can suggest some methods by which the end he has in view may be accomplished:

Can you furnish me with a list of the weights of Carriage Bolts from ¼ up to ½ inch? I had a list, but have mislaid it and cannot find it. I see several catalogues have weights of Square Head Bolts, but don't find Carriage Bolts in any of them, and it is needed in figuring cost of freight on the Bolts, as prices are such now at retail that we have got to figure close in order to make a living. If you can accommodate me it will be a great favor.

Trade Organizations.

Heavy Hardware Jobbers' National Union.

The Heavy Hardware Jobbers' National Union held their semi-annual meeting at the Sherman House, Chicago, on the 4th and 5th inst. The attendance was greater than at any previous meeting, and the proceedings are reported to have been perfectly harmonious. While the members of the organization have not found it feasible to control prices, and therefore no schedules are adopted to govern them, the fact nevertheless remains that a better understanding is cultivated through the relations thus established with one another, and many injurious practices are checked. The reports of the condition of trade coming from the different sections of the country were of the most agreeable character, and the outlook for the future was regarded as exceedingly encouraging. The president of the association is William B. Dean of Nicols & Dean, St. Paul, Minn., but he was unable to be present, and the meeting was therefore presided over by the vice-president, Charles R. Blake, of the Sligo Iron Store Company, St. Louis. The secretary is W. C. Brown of Chicago.

Requests for Catalogues, Quotations, &c.

THE store of Charles H. Shaw at Pittsfield, Ill., was recently destroyed by fire. Mr. Shaw has resumed business on a small scale, but is building a new store, 40 x 160 feet, two stories high, which he will occupy on completion. The new building will enable him to carry a much larger stock than hitherto. Mr. Shaw deals in Shelf Hardware, Stoves and Tinware, Agricultural Implements and Sporting Goods, and desires catalogues, quotations, &c., on these lines.

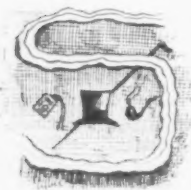
H. O. Strohecker and George McDermid are about to embark in business at Charleston, S. C., under the style of Strohecker & McDermid. Both gentlemen have been identified with the sale of Hardware for a long time, Mr. Strohecker having been connected with C. P. Poppenheim for the past 20 years, and his partner with Marshall, Wescoat & Co. for a slightly longer period. They are intending to handle a general line of Hardware, as well as Guns and Sporting Goods, Cutlery, Agricultural Implements, &c., and will value copies of catalogues, price-lists, &c.

Perkins Bros., Youngstown, Ohio, are going into the Hardware and Slate and Tin Roofing business on May 1, and would be pleased to receive catalogues, &c., from the trade. Up to May 1 their address will be 627 Clyde street, and after that time 2250 West Federal street.

F. H. Ebeling, 217 Warren street, Syracuse, N. Y., dealer in Seeds, Farm Implements, &c., has lately added a large stock of Builders' and Shelf Hardware, and advises us that he would be pleased to receive catalogues and price-lists relating to these lines.

The Knight of the Grip.

XXXIII. SAMPLES AND THEIR VALUE.



SAMPLES are to the road salesman what tools are to the artisan, and the man who is indifferent to their worth or too lazy to carry them is not doing full justice to his employers. An illustration may show all the important features of an article—may portray its every detail with exactness—but it still has but little effect as compared with the article itself.

Alters the Standpoint.

If there is any merit in the goods, they will tell their own excellence with far greater eloquence than any words of the salesman, and will interest the buyer whom the salesman cannot influence. No matter how standard the article may be, no matter how familiar the buyer may be with it, a sample is of value unless the buyer has the same thing already in his stock. There is a tangibility about a purchase when the goods themselves are seen that is not present under other conditions. Quote a man a price on an article and show him a picture of it and he will compare the cost with the figures quoted by others and pay but slight regard to any statements regarding compensating differences in value. Lay a sample before him and quote the price, and he will compare the sample with the price with a view to ascertaining its intrinsic value and will pay less attention to prices he may have from competitors. If the article has merit, he will often strain a point to take it up, when he otherwise would not.

Wants All He Sees.

Man is by instinct an acquisitive animal, and his fingers naturally cling to what they touch. He desires to become seized of everything that comes his way that can be made to conduce to his wealth or welfare. It is this that prompts nine men out of ten to lay aside and accumulate a lot of valueless trumpery, in the vague belief that they may some time need some of the stuff thus saved, and that forms the basis of the most of the hundred and one foibles and little weaknesses that afflict the persons we know. One man will appropriate a rubber band whenever he can; another never passes a pin without picking it up; another is an inveterate and shameless borrower of tobacco; another has in his wardrobe a lot of old underclothing and linen clearly past all wearing, but which he cannot bring himself to throw away. One loads his pocketbook with valueless recipes for doing things he never will want to do, but which he thinks that perhaps he may. Even the memories of many persons are laden with laboriously acquired knowledge for which they will never find a use. It is this faculty that will make a man, when given a sample, handle it over and over with a view to finding its good points and its adaptability to his wants. If he decides that he does not want it or cannot make use of it he often lays it aside with a regret that he does not feel when the article is not presented to him in concrete form.

The Manufacturers' Gentlemanly Representative.

The manufacturers' salesman who presents the same limited line to the same buyers upon each of his calls is prone to discard his samples, and to depend upon his catalogue or his memory in quoting figures. It is, of course, useless to show samples of standard lines to customers who carry the identical goods in stock, bought from the salesman's employers, but sales are often missed because the samples are not at hand for the buyer's inspection. The salesman who handles the one line and becomes thoroughly familiar with it sometimes forgets that the buyer with his immensely larger list may not have a very accurate knowledge of the appearance or comparative quality of the particular goods the

salesman has to offer. That his house is well known and his brands popular is no reason why he should neglect every means for securing favorable attention, and he can best prove his claims by producing the goods for inspection.

The Axe Man.

An Axe salesman—one of the best-known Axe men in the country—told me once how he accomplished the impossible and got a certain Southern jobber started on his line. It was in the days before the big consolidation, and when Steel polls were just coming into use, and a maker's brand meant more than it does to-day. It was generally understood that this house was tied up to one of the manufacturers, and the salesman hardly expected to make an impression, but he walked into the office, presented his card, and at the same time laid a finely polished all-Steel Axe on the desk before the buyer.

"I don't think I can do anything for you, Mr. N.," said that worthy, "We give our Axe business to ———, and so long as he takes care of us on prices as he does, and furnishes us just what we want, we will not make any change."

The salesman said that manufacturer and his Axes were both all right and good enough to tie to, and without trying further to push his goods led the conversation along general lines, letting the buyer idly finger the sample, ruining its polished surface with his moist finger tips and twirling it about as it lay on his desk. Before long his interest in the conversation became fitful and began to wane, while that in the sample grew, and soon he reverted to the original proposition, arguing the matter from an entirely different standpoint, and finally gave the salesman an order for a hundred dozen of the manufacturer's brand as a starter. The order was duplicated several times before the season ended, and the next year was largely increased, and when the trust was formed this factory was as firmly established in the jobber's favor as the former one had previously been.

"If I hadn't put that sample down there," said the salesman, "or if I had let him know how every grating whirl of the Axe upon his dusty desk affected me, I should not have been able to sell him a thing."

The Jobber's Man.

Samples are of peculiar value to the jobber's salesman, with his large and varied line, and particularly so in introducing new goods. In fact, there are many articles that he cannot expect to sell in any quantity without them. He must always have his cutlery rolls, and in their season samples of many goods of which there is such a variety of styles on the market that a mere description or an illustration hardly serve to identify them. Spring Hinges, new patterns of House Trimmings, Padlocks, Auger Bits, a new Roofing Nail of special pattern, Enameled Ware, with a new and attractive tint; Twines, a new Tack package, a Sapsout, Mouse Traps, Curry Combs, Scrub Brushes, Pliers, Hack Saw Blades, a book of Linoleum designs, a new Automatic Drill, &c., until the weight of his trunk exceeds the limit allowed, and the charges for excess baggage become a burden. Their value is proven by the way the character of the orders changes as samples are discarded or new ones issued. Every little while a line which sold briskly when first introduced shows almost no sales, and it is safe to conclude that the "boys" have carried their samples once over the route and then abandoned them with the result that new customers cannot be made, while the old ones have still stocks on hand.

An Old Sample and a New Customer.

Almost anything in the way of a sample can be made of value. There was a miniature tool in this office a short time ago that no one seemed to find any use for until a salesman who had upon his list a customer who bought largely of this particular article took the sample to him for a paper weight. He has sent orders in regularly ever since, though prior to the presentation none had been received.

Use vs. Neglect.

Two new salesmen started out at the same time some years ago to visit the large factory trade in the big cities. They were not very well acquainted with the line, and much of the territory was new, both to them and to the house, so that their success was by no means assured. They carried a few samples, and among other things each was given a new Emery Wheel Dresser, supposedly of great merit and low in price. It was a simple affair—a steel cutting wheel at the end of an iron handle—and I was puzzled to know why Sam, the Western man, spent so much time as he did in studying it and talking about it, but when the orders began to come in the mystery was solved. Sam sent something from nearly every town he visited, and it seemed as if each identical order was headed with this article. Harry's success was very indifferent, and he made but one trip over the territory, when he was taken off the road and put into the city. When Sam came in, I asked him how he made it go.

"Every time that I met a man," said he, "I shoved that Emery Wheel Dresser at him, and hung to him until he had to buy; then, when I had him going I went at him with the rest of the line, and usually won out. If it hadn't been for that Dresser I do believe I'd have failed."

"But what are you going to do now?" I asked. "You've got the country filled up with Emery Wheel Dressers."

"I'll have to find something else, I guess," said he, "must have something to catch those fellows' attention."

He did find something else and pushed it, and proved the best man ever sent out to that time.

(To be continued.)

**Correspondence.****High Prices Killing Export Trade.**

March 20, 1899.

To the Editor: The way one or two of the trusts are affecting us probably illustrates a large number of similar instances through the country, and for the benefit of your readers, and the possible influence which it may have upon the managements of the trusts themselves, we wish to submit the facts as they affect our own business, and we do not think that it will be necessary to add that in our opinion these trusts are showing a strong disposition to use particularly poor judgment.

Early in 1897 we decided to make a certain article, the consumption of which is very large. After going over the matter thoroughly with a number of the prominent exporters we found there was an opportunity to do a very nice export business. For a good many years past all the makers in this country have been using strip steel and retinning their goods. At the low price reached on tin plate during the last year or year and a half we found that tin plate could be used with a slight advantage over the strip steel, and accordingly we built all our machinery with the use of tin plate in mind.

The recent advances have not only turned the tables, as regards the relative cost of tin plate and strip steel, but have increased the cost of the article referred to to a point which prohibits the exportation of the same. Our machinery is all completed and set up on the floor, and, as it is not adapted to the use of the strip steel it

will stand there idle until some turn of affairs gives us a chance.

We also use considerable quantities of wire in our goods, and have built up a very satisfactory export trade on another class of goods made from this. The aggregate advances made on wire amount to from 33 1-3 per cent. on common grades to 100 or 200 per cent. in some instances. This advance in the cost of wire is going to cramp us seriously in our export business, and will, of course, curtail the consumption of wire to the extent of our requirements.

As pointed out in the beginning of our letter, we believe our experience illustrates that of many other concerns throughout the country, and that the present policy of the trusts, while undoubtedly yielding a handsome immediate profit, is in the long run going to injure a great many industries dependent upon them for supplies, and will ultimately injure the trusts themselves by reducing the volume of their business to a point where it will be extremely difficult to pay the dividends on the amount of water which they have taken on. In that not far distant day the consumer will have his innings again, but at what a cost! How much better it would be if these organizations could be content with the very respectable increase of profit resulting from economies alone, and allow the natural growth of the country's business to continue.

Hardware Store Business Methods.*

THE above is the title of a book just published by the David Williams Company, 232-238 William street, New York. It is edited by R. R. Williams, Hardware editor of *The Iron Age*, and is a compilation of articles which have appeared in the columns of this paper. The authors, for the most part, are practical and progressive Hardware merchants, whose contributions to the discussion of approved methods deserve to be presented in this permanent form for convenient reading and reference. The thorough and practical treatment of the subjects discussed, the embodiment in these articles of the experience of men of ability and enterprise, the suggestiveness of the principles and maxims thus presented will, it is hoped, render the volume useful to many and tend to elevate still further the business methods of the Hardware trade. The scope of the book is indicated in the table of contents, as follows:

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* Hardware Store Business Methods. Published by David Williams Company, 232-238 William street, New York. 200 pages. Diagrams and Illustrations. Price, postage paid, \$1.

The volume will be of interest to merchants who desire to be advised in regard to the practice of the trade with a view to improving their own methods, and also to the earnest and ambitious clerk who wishes to qualify himself for a successful career in the Hardware field.

The articles are subdivided and copiously cross-headed so as to indicate clearly the subjects touched upon. In addition to the table of contents there are six pages of double-column index, making it easy to find matter connected with the subjects discussed. The practical character of the treatment of subjects is indicated in the following extract from the index:

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The book has 200 pages, 8 x 5½ inches, and is bound in cloth. There are many printed forms making plain methods described, together with such illustrations as the text requires.

By an error in the Index Supplement issued with *The Iron Age*, April 6, F. Christen & Sons, St. Louis, Mo., were entered under "Bellows, Blacksmiths', Molders', &c.," as "Christie & Sons." The trade will please note the correction.

Helping Out Dull Seasons.

BY WESTERN NEW YORK.

MOST every Hardwareman knows what is meant by dull seasons. There are very few localities which do not experience them. These dull seasons come at different times of the year in different sections of the country. The successful methods for increasing trade at such times will not vary much in the different sections.

Special Sales.

Special sales will do much to help out dull seasons. They attract trade which otherwise would not be received at such times. There are always some things in a Hardware store which will make attractive inducements. There are goods which have been displayed and have become slightly shop worn. The chances are that these articles are exactly as good for all practical purposes as their brighter companions. Then there are broken assortments, each article of which is as good and as bright as it ever was, but broken assortments are "stickers." The articles, therefore, are not as valuable to the merchant as they once were; while for the customer they are as useful as ever. During the dull seasons the store and stock should be thoroughly ransacked for such odds and ends. If complete lines are found which have been moving too slowly, let them be brought out with the rest. Place prices on them which will be bound to sell them. In some cases it is very desirable to forget the cost mark altogether. It is better to have what the goods will bring in cash than to have the "stickers" on the shelves. The cash soon can be turned into new, salable goods. It is a very good plan always to be on the lookout for job lots of goods which can be utilized at such times.

Advertise the Special Sales.

These special sales should be well advertised. It pays to advertise them. In fact, good advertising is the one thing that can make them successful after arrangements inside the store have been correctly completed.

Be Frank; Advertise Actual Situation.

The public should be told all about the goods and the prices. If the goods are shop worn, say so, and let the public know that otherwise they are exactly as useful as they ever were. Let people know what can be saved by buying them. If a job lot has been purchased at a low figure, the public should know that it was done for the benefit of the people. If a broken line is being closed out, tell that, and explain why it is to the advantage of the store to close it out at reduced prices. People can see by the prices that it is to their advantage to buy. Honest reasons should always be given for reduced prices. The public has faith in honest advertising. People will respond to it. Price reductions without apparent reasons may be honest enough as far as the merchant is concerned, but the public is skeptical. People have very often been deceived by low prices.

What Is Accomplished.

This plan has been helpful in making dull seasons better. Not only does it increase the receipts, but it is beneficial to the merchant. It cleans up his stock, and gives him money and room for new goods.

How to Do It.

The experience of one Hardware house that followed this plan was very satisfactory. The bargain table was kept full of attractive merchandise during the dull season. It was persistently advertised. Every Saturday the table was filled with some one specialty that had been offered for the one day at a very low figure. On these days the other bargain merchandise was displayed on a counter nearby. The plan helped materially to keep up the daily receipts, and a great deal of merchandise that could not have been sold as

regular stock was turned into cash. A good example was found in a stock of 200 or 300 Kettle Covers. These had been stored in a tin rack in the basement. When the floor of the store was mopped the water dripped through and spotted them. Most of these rust spots were on the outside, the inside remaining bright and clean. These points were told in the advertising. On two different Saturdays these Covers filled the bargain table. They had been advertised at 2 cents each, or six for 10 cents. Most every customer took three of them, and many took six. At the end of the two special days there were scarcely two dozen damaged Covers left in the store. Had they not been sold at this reduction they would have been nearly a total loss. The Covers were strong and durable, but the stock was far too large for the average amount of trade at that particular store. This is only one of many examples of quick turning of merchandise into cash to the mutual advantage of buyer and seller.

A Holiday Window Attraction.

C. M. DOXSEE, Algona, Iowa, who deals in Hardware and Stoves, and does a plumbing and heating business also, created the figure of Mrs. Santa Claus, here shown, as a holiday store window attraction during



A Holiday Window Attraction.

the Christmas season. She was seated in an arm chair made of Conductor Pipe and Galvanized Iron. A wood upright and cross piece to which the arms were attached formed the skeleton of the body. Her gown was stuffed with Excelsior at the proper places to give shape to the form. The bust was covered with rows of Screws as a trimming, and the bodice made by shaping Chicken Netting around it and decorating with Tin Spoons. The dress of "Manila silk" was made by weaving $\frac{1}{4}$ and $\frac{1}{2}$ inch Rope. The head consisted of two Saucepans, with frayed Rope for hair surmounted by a tin poke bonnet. On her feet were wooden shoes and in her hair was a sprig of holly. The display attracted much attention and was favorably commented on.

The Hardware establishment of Bard, Reber & Co., Reading, Pa., was the scene of a disastrous fire on the morning of the 6th inst. It is thought that the stock has been entirely destroyed, a good deal of the damage being inflicted by water. The stock inventoried at \$105,000 last January, and on it an insurance of \$60,000 was carried.

John Chatillon & Sons in New Quarters.

JOHN CHATILLON & SONS, 85-93 Cliff street, New York, have finished rebuilding the portion of their six-story and basement building, injured in the fire of September 23, 1898, and are now back in handsomely equipped quarters. The greater fire of December 23, 1891, destroyed much of the four upper floors, which then in rebuilding were made thoroughly fire proof. At that time the street and first floor above were so little damaged that they retained this space in which to conduct their business, and did not remodel it. The last fire started in and wrecked the two floors referred to, doing no damage to the upper ones. Now the entire building is modern and fire proof. The first floor will be used as a shipping department and stock room; the floor above the street being reserved exclusively for a counting room and private office, with a fine, large, well lighted section in which to display their samples. In the four large floors above are assembled their Spring Scales and other Scales and kindred goods, all casting and coarse work being done out of town.

This representative business was established in 1835 by John Chatillon, father of the present owner, George H. Chatillon, under whose personal management the business has been conducted for the last 25 years. This firm have been on the present site for 50 years, and have gradually extended the scope and volume of their business by purchasing adjacent property until they now have 125 feet front on Cliff street, part of which extends clear through the block to Jacob street in the rear.

In addition they have a factory at Fulton, N. Y., where they manufacture, under the brand of Foster Bros., a line of Knives, Cleavers, Steel and other Butchers' Cutlery.

At another factory at Phoenix, N. Y., they make, under the brands of Phoenix Knife Company and John Chatillon & Sons, a line of Pocket Knives. With their bettered facilities they will now carry in New York a stock of Pocket Knives with which to execute hurry orders, all shipments heretofore having been made from the factory.

Status of Express Charge Negotiations.

THE MERCHANTS' ASSOCIATION of New York, after much correspondence extending over a period of six months, have reached a starting point for a conference with the presidents of the various national express companies, and there is some reason to anticipate a mutually satisfactory agreement.

The principal questions for discussion, and which have been accepted by the representatives of the express companies, are the revenue stamp tax and a proper schedule of express rates.

As the matter now stands the express officials are in the position of either justifying their present charges or by declining to do so defying public sentiment.

The conference has been postponed longer than was expected, partly owing to the decease of one important official and the absence of others, but it is anticipated the matter will now be taken up without further delay.

The Troy Nickel Works, Albany, N. Y., issue a hanger card containing the following facetious announcement:

OFFICE HOURS.

Collectors of Church Subscriptions.....	9 to 10 A. M.
Book Canvassers, Agents, &c.....	10 to 11 "
People with Funny Stories.....	11 to 12 "
Ladies with Tickets For Sale.....	12 to 4 P. M.
People with Inventions For Sale.....	4 to 5 "

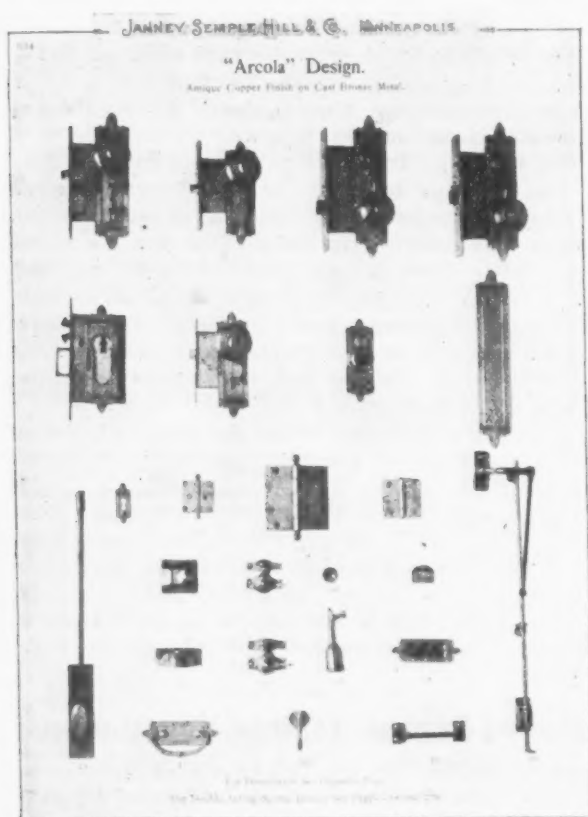
The rest of the afternoon we devote to Miscellaneous Calls.

We attend to our own Business at night and have the Troy Nickel Works, of Albany, N. Y., attend to our wants in the Stove Hardware Line, for Alaska is Always Cold.

W. M. Fulton has sold his stock of Shelf Hardware, Stoves, Tinware and Farm Implements at Deersville, Ohio, to his brother, W. S. Fulton.

A New Feature in Catalogue Making.

THE illustration here given is reproduced in reduced size from a page of the catalogue of Janney, Semple, Hill & Co., Minneapolis Minn., which was recently issued and reviewed in these columns. This large book of 1305 pages, each 12½ x 10 inches, has a number of unique features. The engraving shows one of a number of pages, on each of which is grouped the various articles required for the inside trim of a building, so far as concerns the Hardware, each piece in harmony with the other. At the right and facing each page of this kind, containing one of many designs regularly carried in stock, is a page of descriptive matter, with set numbers corresponding with each figure. Dimensions of the various goods, together with styles of finish and refer-



A New Feature in Catalogue Making.

ences to other pages showing detailed views of Locks, &c., are also given.

The object of this arrangement is to combine on one page the entire Hardware trim required to equip a building and have each detail in harmony with the rest, so that a dealer, architect, builder or individual can get an idea of the relation each bears to the other, without the confusion incidental to looking through a number of pages, not to mention errors in selection by any not well versed in the business. The Builders' Hardware shown in this way is the product of the Russell & Erwin Mfg. Company, of which a full stock is carried.

John C. Kupferle's Catalogue.

THE line of goods covered by the 1899 catalogue of John C. Kupferle, St. Louis, Mo., includes Water Works Specialties, Yard Hydrants, Street Washers, Fire Hydrants and Cast Iron Goods. Cast Iron Goods cover Pulleys, Lawn Sprinklers, Sink and Tank Brackets, Cess-pools, Cellar Traps, Sewer, Cesspool, Foundation and Ventilating Grates, Strap Solder Molds, Closet Seat Legs, Ceiling and Floor Plates, Hose Menders, Valve and Cistern Closets, &c. The catalogue, which is designated as No. 20 and illustrates these goods, with prices and descriptions, is bound in stiff cloth covers.

Price-Lists, Circulars, &c.

FOX MACHINE COMPANY, Grand Rapids, Mich.: Catalogue H, showing the Fox Steel Sash Pulleys, Post Boring Machine and Quadrupte Bit. Most of the illustrations are attractively printed in colors.

BINDLEY HARDWARE COMPANY, Pittsburgh: Spring and summer goods and Bicycle Sundries.

THE PHENIX WIRE WORKS, Detroit, Mich.: Selected price-list of Wire Cloth.

ATWATER MFG. COMPANY, Southington, Conn.: Abbreviated catalogue of Carriage Builders' Hardware, Special Forgings and Wrought Ox Shoes.

A. J. HARWI HARDWARE COMPANY, Atchison, Kan.: Spring and summer seasonable Hardware.

KNAPP & SPENCER COMPANY, Sioux City, Iowa: Supplement No. 1, applying to department C, Builders' Hardware, of their general catalogue.

THIEM & Co., St. Paul Minn.: Catalogue of Bicycle Specialties, comprising Thiem's Toe Clips, as well as Lamp Brackets, Luggage Carriers, Bicycle Stands, Racks, &c.

THE VANDEGRIFT MFG. COMPANY, Shelbyville, Ind.: Implement, Nut and Combination Wrenches, Fodder Tie, and Belt Tightening Countershaft.

Trade Items.

COE MFG. COMPANY, 50 Warren street, New York, manufacturers of Bicycle Accessories and Metal Novelties, are the sole selling agents for the Mossberg Tire Bells, illustrated in our issue of April 6. The Bells are made in two numbers, single stroke and chime. Supplementing the goods of their own manufacture, they represent in Eastern territory goods of several other Bicycle sundries makers, and are desirous of representing a few more responsible concerns of this character.

AMERICAN ELECTRICAL NOVELTY & MFG. COMPANY, manufacturers of a varied line of Electrical Novelties and Dry Batteries, several of which we have illustrated, have moved from their former address on Broadway to 255 Centre street, corner of Broome street, New York.

SMITH & HEMENWAY COMPANY, 20 Warren street, New York (296 Broadway after May 1), have bought out the Crown & Anchor Razor Strop Company, Brooklyn, and will continue the manufacture of a complete line of medium and high grade Razor Stropps. They are now offering some desirable numbers of Swing Stropps.

THE OVERMAN MFG. COMPANY, 19 Warren street, New York, have, in their front window, all that remains of a Victor Bicycle, just dug out of the debris occasioned by the great fire of December 11, which destroyed Rogers, Peet & Co.'s clothing store at Broadway and Warren street. It was in the ruins from December 11 to April 5, having been exposed to an intense heat and a smoldering fire, but the frame, although utterly wrecked, bent and twisted, shows not a brazing or joint started, which they consider a severe test for even the best workmanship.

W. & J. TIEBOUT, manufacturers of Brass, Galvanized and Ship Chandlery Hardware, have removed their office and salesroom to 118 Chambers street, New York, where they will carry, as heretofore, a complete stock of goods in their line.

F. J. SMITH, for many years associated with S. W. Card Mfg. Company, Mansfield, Mass., manufacturers of Taps, Dies and Screw Plates, has recently been elected president and general manager of that company. Mr. Smith succeeds the late S. W. Card, and during the long illness of the latter was practically manager of the business. He began with the concern 20 years ago, and is familiar with every detail of the business, both manufacturing and commercial. Mr. Smith has visited the trade in all parts of the country, and is well and favorably known to the patrons of the S. W. Card Mfg. Company and to the trade generally. His friends will be pleased to know that he is now part owner as well as chief officer of the company which he has served so long and faithfully.

FREDERICK PEARCE, 77-79 John street, New York, manufacturer of and dealer in Electricians', Telegraph, Telephone and Electric Light Apparatus, will about May 1 remove to the Metropolitan Realty Building, 18-20 Rose street and 214-218 William street, New York. The growth of the business has compelled Mr. Pearce to greatly enlarge his facilities, hence this transfer of office, salesroom and factory to a larger and more modern building. A feature of this business is the manufacture of Fire Alarm and Police Instruments and Supplies.

R. H. BARNES, recently with Farwell, Osmun, Kirk & Co., St. Paul, Minn., is now in charge of the purchasing department of the Stover Mfg. Company, Freeport, Ill.

Among the Hardware Trade.

Among new stores lately opened are the following:

Berkey Bros., Bolivar, Pa.
Kraker & Bohmer, Melrose, Minn.
Newgard & Sorlie, Gaylord, Minn.
Gray & Richards, McGee, I. T.
Roughton & Manz, Sullivan, Wis.
Elton Bros., Owatonna, Minn.
Howard Hawley, West Chester, Pa.
Johnson & Church, Inkster, N. Dak.
Ray Bros., Belvidere, Ill.
J. R. Crow, Fowler, Col.
T. Beare & Co., Grand Forks, N. Dak.
Livengood & Co., Concordia, Kan.
Wooley Bros., Hammond, Ind.
Hedge & Hall, Rockland, Mass.
J. A. Morsman & Co., Grain Valley, Mo.
C. Lapman & Son, Hanover, Mass.

Among recent changes in ownership have been the following:

C. F. Speice, McComb, Ohio, now Speice & Latchaw.
Walter Crowell, West Bend, Iowa, now Crowell & Lohr.
Luchsinger & Streiff, Appleton City, Mo., now A. Luchsinger.
Whitney & Crisp, Elyria, Ohio, now E. F. Whitney.
J. R. Beach, Thorntown, Ind., now J. C. Comstock.
Wm. C. Jolly, Tecumseh, Neb., now Jolly & McDougal.
Michael Garvey, Carrington, N. Dak., now Carrington Machine Company, D. A. Houlihan and J. E. Martin, proprietors.
Earnest Billings, Lisbon, N. Dak., now Billings & Gilbertson.
W. S. Korner, Falls City, Neb., now Frank Uhlig.
F. H. Hacke, Vacaville, Cal., now W. L. Schroeder.
J. E. Persons & Co., Grand Saline, Texas, now J. E. Persons.
M. A. Heaton & Co., Central City, Iowa, now Heaton & Smith.
Lovenberg & Korbes, Narka, Kan., now F. V. Lovenberg.
T. F. Welborn & Son, Indianola, Neb., now T. F. Welborn.
Beshears Bros., Vandalia, Mo., now Beshears & McCarroll.
C. W. Graham, New London, Iowa, now C. W. Graham & Co.
Morgan & Gowdy, Riverton, Iowa, now Thompson & Morgan.
Cain & Morrison, Elkhorn, Wis., now C. B. Williams.
R. B. Kilbury, Plain City, Ohio, now W. H. Haner.
Reeves & Hunter, Paris, Ill., now O. H. Reeves.
Fred. Scheidegger, Mayer, Minn., now Gongoll Bros.
T. J. Vaunoy & Co., Dodd, Texas, now Dickey Bros. & Jones.
Mote, McDowell & Co., Kokomo, Ind., now Mote & Co.
Johnston & Stephens, Coldwater, Kan., now P. A. Johnston.
George P. Pettee, Princeton, Ill., now Pettee & Church.
Slade & Potter, 2293 Euclid avenue, Cleveland, Ohio, now F. M. Potter.
Wilkin & Wasson, Christman, Ill., now L. A. Wilkin.
Hardman & Stands, La Fontaine, Ind., now R. D. Hardman.
Ferguson & Fender, Waitsburg, Wash., now Fender Bros. & Co.
A. C. Evans, Alamogordo, N. M., now W. B. Snodgrass.
Roberts & Co., Milan, Ind., now H. Roberts.
Harlan & Whalen, Lincoln, Kan., now Troup & Robinson.
T. W. Phillips Neola, Iowa, now T. W. Phillips & Bro.
R. B. Hall, St. James, Minn., now Engelbrecht Bros.
W. H. Evans, Eureka, Kan., now W. H. Evans & Son.
Cathcart & Woodruff, Correctionville, Iowa, now F. W. Woodruff.
Snyder Bros., Wolsey, S. Dak., now E. O. Snyder.
E. W. Coleman & Son, Miltonvale, Kan., now W. T. Matthews.
G. R. Lott, Saybrook, Ill., now Lott & Spradling.
Geo. W. Jackson, Woodbine, Iowa, now Jackson & Groat.

Madden Hardware Company, Muscogee, I. T., sustained a loss of about \$15,000 by fire a few weeks since.

Batcheller & Wood have purchased the business of the Hutchinson Hardware & Implement Company, Hutchinson, Kan., and will continue at the old stand. Mr. Batcheller was formerly of New York City and Mr. Wood was connected with the old firm for a period of 13 years.

The firm of Stallman & Johnson, Sioux Falls, S. Dak., have incorporated their business under the style of the Stallman Hardware Company.

The Thompson Hardware Company have been organized at Marlette, Mich., the members of the firm being D. Thompson of Elkhart, Ind.; F. E. Thompson, late with Morley Bros., Saginaw, Mich., and D. F. Hunter of Marlette. They have purchased the stock of Stroebel Bros. & Co. The store has been enlarged and painted inside. A new building, 20 x 27 feet, has been erected in rear for tinshop. The stock carried has been materially increased.

C. C. Schlatter & Co., Fort Wayne, Ind., have incorporated their business under that style. The principal stockholders besides Mr. Schlatter were former employees of the firm. The interior of the store room has been remodeled and the office supplied with an entire new line of desks, filing cabinets, &c. The establishment is located at 38 and 40 E. Columbia street, and a wholesale as well as retail trade is done.

The Schoub Hardware & Iron Company, East St. Louis, Ill., have been reincorporated and reorganized, with G. Schoub president and F. Glessing secretary and treasurer, of the old concern, re-elected. The business was established in 1868 and was incorporated in 1879.

The Thos. Birkett & Son Company of Ottawa, Ont., have been incorporated with a capital stock of \$150,000. The company's business is both wholesale and retail and they carry a full line of Shelf and Heavy Hardware. Two additional travelers have recently been put on the road.

J. Mertz & Sons, Sandusky, Ohio, are erecting a new building for their business. It will be 60 x 66 feet, and three stories high.

MacCarthy & Harper have purchased the business of the Calvert Hardware Company, 345 N. Calvert street, Baltimore, Md. The stock comprises General Hardware, Tools, Cutlery, &c. Mr. MacCarthy was formerly with the Tabb & Jenkins Hardware Company and Mr. Harper with William H. Cole & Sons.

Shelby Bros. have succeeded S. A. Kochensparger, Thornville, Ohio. To the former stock of Hardware they are adding a line of Buggies, Wagons and Farm Implements, also the manufacture of galvanized iron burial cases.

Thomas Goering Hardware Company, Moundridge, Kan., have increased their capital stock to \$10,000.

D. W. Soper has sold out his business in Beloit, Kan., to Beloit Hardware Company. The new firm have enlarged the tinshop, where a large amount of tin and galvanized ware, stock tanks, tubing, &c., is made. The business is both wholesale and retail.

George J. Sexauer has disposed of his Hardware store at 89 Gratiot street, Detroit, Mich., and is now interested in the cornice and sheet metal, slate roofing and hot air furnace business at 231 Randolph street, under the style of Geo. J. Sexauer & Son.

N. S. Cole & Sons, Holgate, Ohio, have disposed of the Hardware part of their business, and will hereafter confine their attention to the sale of Farm Implements.

Northern Hardware & Supply Company, Menominee, Mich., have decided to make an important enlargement of their business.

The Cloud, Repp & Moulton Company, Canton, S. Dak., have been incorporated to conduct the retail Hardware and Implement business.

The Hardware store of Sharrock & McCoy, Cleo, O. T., was recently badly damaged by fire. About one-half of their \$4,000 stock was saved. They are erecting a new building, 24 x 100 feet, which will be stocked with \$5000 worth of new goods. The firm do business on a strictly cash basis.

The store of H. M. Parks & Co., at Marion, Ill., was destroyed by fire a short time since. A new building is under way and the firm expect to take possession about June 15.

W. H. Shares has succeeded Parker & Parker in the Hardware business at Carthage, Ind. Mr. Shares has added the sale of Wagons, Buggies and Harness.

F. H. Chase has succeeded to the Hardware and Harness department of the firm of Chase & Landis, dealers in Hardware, Farm Implements, &c., Hoyt, Kan.

John E. Birch & Son's Hardware store, at Roland, Man., was among the establishments destroyed in the recent large conflagration at that place. The Messrs. Birch carried an insurance of \$3000 on their stock, which they were unfortunately unable to collect owing to a little oversight on their part in not getting a permit from the insurance company for gas plant. They advise us that in view of the company's position in the matter other local houses have decided to cancel their insurance with them.

O. M. De Lay & Co. have succeeded O. M. De Lay at Downs, Kan. The firm are erecting a new building, which will be devoted to the accommodation of a stock of Implements, Wagons and Buggies.

Legg & Shaw Company, Nevada City, Cal., are putting in a new plate glass front. A new office is also a feature of the store.

H. W. Jones & Bro., Hunnewell, Kan., were recently burned out, suffering a total loss. A new firm, W. C. Jones & Son, have been organized, of which H. W. Jones is a member.

Wells & Co., Heppner, Ore., are fitting up a new building, in which in addition to Hardware they will carry a line of furniture.

L. D. and G. H. Ray have joined W. W. Ray in the Hardware business at Belvidere, Ill., under the style of Ray Bros.

I. E. Houghton has succeeded Korth & Co. in the Farm Implement business at Portsmouth, Iowa.

J. M. Evans & Co. and L. Bassler, dealers in Hardware and Implements, respectively, at Morrill, Kan., have consolidated their interests.

M. C. Everton, dealer in Hardware at Logan, Utah, has added a stock of tinner's supplies and opened a tin shop.

Wm. H. Day's Sons are continuing the business at Winfield, Kan., founded by the late Wm. H. Day.

The Machinists' Tool business of the Geo. A. Rubelman Hardware Company, St. Louis, having reached very generous proportions, they find it necessary to increase their floor space and are looking about for a suitable building. It is their intention to carry a line of machinery, in which they are greatly encouraged by past inquiries and sales.

Foster & Lewis have succeeded to the business of the late J. H. Foster, at Gladwin, Mich. They have also purchased the Heavy Hardware stock of D. M. Mills of Gladwin.

The Gray & Dudley Hardware Company, Nashville, Tenn., have purchased the property fronting on Market street, corner of Bank, with 75 feet front on Market street and extending through to College street, 230 feet. They will commence breaking ground May 1 next for the erection of an especially large and complete establishment. The building will be seven stories in height, and will be constructed of cut stone and pressed brick. The portion fronting on Market street will be devoted to their jobbing business, while the portion fronting on College street will be fitted up in elegant style, with all modern conveniences, and will constitute one of the largest retail Hardware houses in the Southern country. The company will have their own electric plant for lighting up the store, running elevators, &c. The offices will front on Market street, running back 100 feet on the first floor. On the second floor will be the Sporting Goods and Cutlery departments, occupying a space 75 x 100 feet, while the sample room will be of somewhat larger dimensions. They have employed a well-known architect, Geo. W. Thompson of Nashville, who with an officer of the company will visit and inspect a number of fine business houses in the country, so that they will be able to adopt the most approved plans. They hope to have the building finished in a little more than 12 months. The officers of the Gray & Dudley Hardware Company are Robert M. Dudley, president; Jno. M. Gray, Jr., vice-president; Jas. T. Jenkins, treasurer; R. Houston Dudley, Jr., secretary. The capital stock of this company is \$350,000.

J. E. Skaden, Malvern, Iowa, has disposed of the lumber department of his business, and will hereafter devote his attention to the sale of Hardware.

Chas. H. Hale has purchased his partner's interest in the firm of Hale & Holman, St. Albans, Vt., and will continue the business under his own name.

The two-story brick building, 60 x 80 feet in dimensions, occupied as a Hardware and Implement establishment by F. C. Shaler, St. John, Kan., was burned out a few weeks since. The loss was about \$15,000, on which there was an insurance of \$5400. Mr. Shaler has resumed business and will rebuild as soon as the weather permits.

The Vulcan Hardware & Electric Company, S. Wilkening, proprietor, dealers in Hardware, Tools and Cutlery, have moved from 164 East Eighty-fourth street, New York, to 751 Amsterdam avenue, between Ninety-sixth and Ninety-seventh streets.

On April 1 the firm of Foote & Becker opened a store at 517 Lackawanna avenue, Scranton, Pa., making a specialty of Builders' Hardware and Supplies and Shelf Hardware. Mr. Foote was formerly president of the Foote & Shear Company of that city and Mr. Becker was in charge of the Builders' Hardware department of the same concern.

Another new house at Scranton is that of Foote & Fuller, who have just opened a store in the Mears Building. This firm are making a specialty of Stoves, Ranges and all articles connected with House Furnishing Goods in the kitchen department. Mr. Foote was formerly treasurer of the Foote & Shear Company. Mr. Fuller is the son of A. C. Fuller of the Scranton Stove Works.

Miscellaneous Notes.

Cork Screws.

Rockwell Clough, Alton, N. H., has recently taken out another patent on his new 1899 solid handle steel cork screw, which he refers to as being machine made and carded. These articles are offered at \$3. list, per gross, and, we are advised, are being readily taken by the trade, both in the United States and foreign countries.

Lloyd Wire Hammock.

The Union Wire Mattress Company, 73 to 83 Erie street, Chicago, have brought out a novelty in the line of hammocks which is named the Lloyd Wire Hammock. This hammock is made of galvanized wire closely woven in about the same manner as the fabric used in bed mattresses. It is thus exceedingly elastic and therefore very comfortable, and being galvanized is represented as an exceptionally durable article for outdoor use. It can be left out in the weather throughout the season without injury.

Faries Mfg. Company.

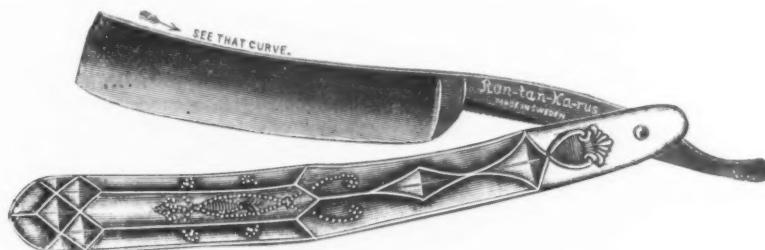
Faries Mfg. Company, Decatur, Ill., are making a large variety of electric lamp holders as well as combined shade and shade holder. The shades are made of aluminum or steel, the latter being enameled and the former polished or satin finish. The company have recently produced a large number of shades of different design, and among others are getting ready for market a complete line of aluminum shades for clusters; also shades for Welsbach light. The latter will not only be made in the form usually in use, but will include a side shade which may be so put upon Welsbach burners that project from side walls as to throw the light of the burner in any desired direction. The point is made that these shades will be much lighter than the earthenware or glass shades commonly used. The company have lately issued catalogue No. 6, relating to their manufactures.

Improved Yankee Adjustable Eaves Trough Hanger.

Proudman Bros., successors to H. B. Todd, Meriden, Conn., issue a circular calling attention to the Improved Yankee adjustable eaves trough hanger, which was patented in 1888 and has had a large sale. They state that they have special machinery and tools for making the parts and that only the best tools are used. The original Yankee hanger has, we are advised, been in use by a large number of tinner in the New England States for the past 15 years, so that it has been thoroughly tested.

Ran-Tan-Ka-Rus Razor.

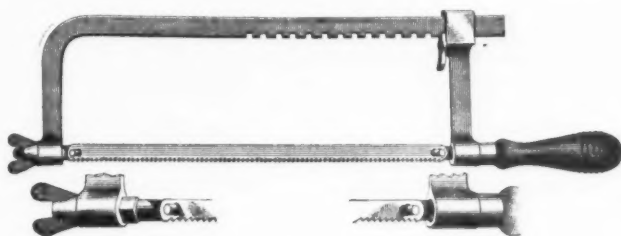
Smith & Hemenway Company, 20 Warren street, New York (296 Broadway after May 1), are marketing the Ran-Tan-Ka-Rus razor here shown, made by Joh. Engstrom, Sweden, for whom they are the sole representatives in the United States. A peculiarity of the razor is in the form of blade, the construction being such that it is said a man cannot use it in shaving without obtaining a drawing cut or motion. It will be noticed that the edge and back are both curved and parallel, the curved back insuring a more even stropping than is possible with a straight back and curved blade. The material from which the blade is forged, we are advised, is made into

*Ran-Tan-Ka-Rus Razor.*

bar form from sixty small wires, giving it some of the characteristics of Damascus steel for strength and elasticity. The blade has a Hamburg roll point, is double shouldered, has a file tang to secure a good hold and is tempered in lead, the name of the razor originating with the remarks of the workman who is covered with sputtering lead when tempering the blade. The tangs and back are mirror crocus polished, and the blades finely glazed, as crocusing the thin blades would often injure the temper. There is but one size, $\frac{5}{8}$ -inch, but there are two styles of handles, figured celluloid, as illustrated, and black hard rubber. This razor is referred to as the only Hamburg concaved razor imported from "the land of the midnight sun."

Adjustable Hack Saw Frame.

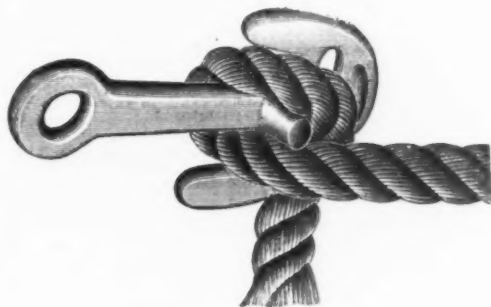
Henry Disston & Sons, Philadelphia, Pa., are offering the adjustable back hack saw frame herewith shown.

*Adjustable Hack Saw Frame.*

The frame is adjustable for blades from 6 to 12 inches in length, and is referred to as well and strongly made.

Hold-Fast Clothes Line Hook.

The accompanying cut illustrates a clothes line hook, put on the market by the Zenith Mfg. Company, 35 West

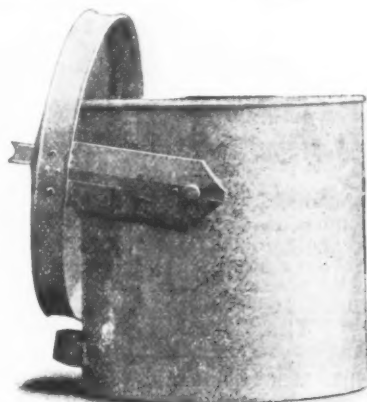
*Hold-Fast Clothes Line Hook.*

Center street, Cleveland, Ohio. The hook is made of galvanized malleable iron, so as not to corrode or spoil the clothes. It is stated that the rope can be put up and

taken down with one hand, that there is no tying knots nor slipping, and that the greater the weight the tighter it holds.

The Sanitary Garbage Pail.

The garbage pail here illustrated is manufactured by John S. Brooks, 564 Atlantic avenue, Brooklyn, under a patent granted to him April 4, 1899, for a "combined bail and cover for vessels," as the invention is suited to other receptacles that require stability in the cover. It will be seen that by raising the cover over the top of the can it will drop down to its place by means of the slotted guides. It can be carried by the top handle and re-

*The Sanitary Garbage Pail.*

quires no other bail. It has been tested eight months and is said to have proved itself strong and practical, costing but little more than any good can for a similar purpose. It is made in the usual sizes, of galvanized iron or aluminum coated sheet steel, the slotted guides being

Zenith Spoon Guard.

Zenith Mfg. Company, 35 West Center street, Cleveland, Ohio, are offering a spoon guard, as here shown. It

*Zenith Spoon Guard.*

is designed for use on all classes of utensils, to prevent spoon or fork slipping into the contents, and to prevent either becoming heated. The guards are nickel plated and are made in two sizes, No. 1 for table, dessert and tea spoon or fork; No. 2 for large stirring spoon.

The Delmonico Lemon Squeezer.

Illustrations are herewith given of a lemon squeezer made on entirely new principles by Nicol & Co., 55 and 57 West Washington street, Chicago. This is claimed

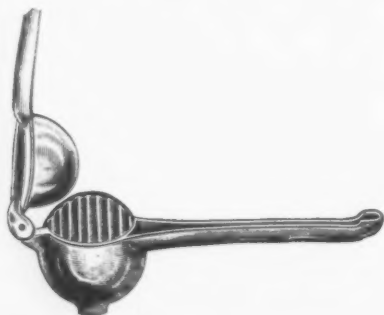


Fig. 1.—Delmonico Lemon Squeezer, Open.

by the manufacturers to be the only lemon squeezer which extracts all of the juice from the lemon. The discharge opening is made in the shape of a funnel, so that the juice can be concentrated into the neck of a bottle, as shown in one of the illustrations, thus preventing the

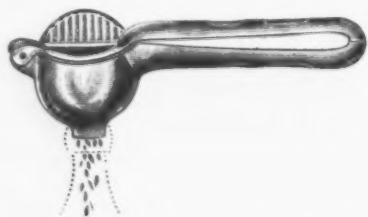
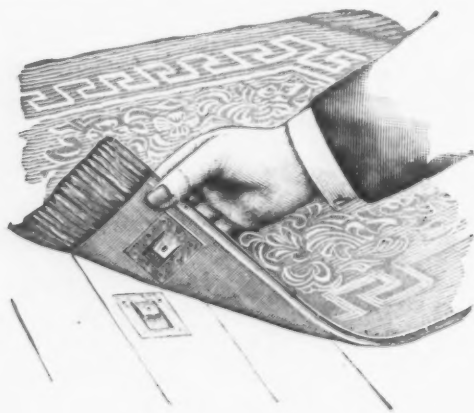


Fig. 2.—Delmonico Squeezing Juice Into Bottle.

soiling of garments, which frequently happens when squeezing lemons in the usual manner. The Delmonico squeezer is made of malleable iron which is heavily tinned to prevent rusting.

The Zenith Fastener.

The Zenith Mfg. Company, 35 West Center street, Cleveland, Ohio, are offering a fastener designed for fastening rugs, hall or stair carpets to the floor, as herewith illustrated. It consists of two parts of thin metal, one to be sewed to the carpet and the other to be nailed to the floor, at the proper places so that the hook part will slip into the socket of the part on the floor. As many fasteners are used as are necessary to hold the carpet or rug smooth and securely in place. It is pointed out that



The Zenith Fastener.

the fasteners cannot be felt under foot, or show on the surface, and that pianos, sofas, heavy furniture, &c., can be rolled over them without injury to the fastener. The fastener can be used on bare polished floors or over heavy carpets or linoleum by the use of different lengths of tacks. It does away with rods and other devices on stair carpets that interfere with sweeping and cleaning the carpet when down, it is pointed out, and permits the carpet to be taken up and replaced again without remov-

ing the fastener from carpet or floor. It is also recommended for use on wagon covers, tents, awnings, buggy curtains, &c.

At the annual meeting of the Edwards & Chamberlin Hardware Company, Kalamazoo, Mich., the following officers were re-elected: C. M. Chamberlin, president; H. B. Peck, vice-president, and A. K. Edwards, secretary and treasurer. The company are now engaged in remodeling their establishment, which has been doubled in size by the addition of an adjoining store, which increases their floor space to about 27,000 square feet.

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Current Hardware Prices.

APRIL 12, 1899.

NOTE.—The quotations given below represent Current Hardware Prices, whether made by manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail Hardware merchants. Very small orders and broken packages often command higher prices, while lower prices are often given to larger buyers.

The character @ is used to indicate a range of price: thus discount 50 & 10 @ 50 & 10 & 5%, signifies that the goods in question are sold at prices ranging from 50% to 10% to 50% to 10% & 5%.

Many of the lists referred to in the following quotations are given in *The Iron Age* Standard Hardware Lists (price 50 cents). On many other articles, however, the different manufacturers have their own lists, which they will send to the trade on application. In the advertising columns will be found the announcements of manufacturers of nearly all kinds of Hardware, who will be pleased to furnish the trade information in regard to their goods and prices.

In the present condition of the market while many advanced prices are announced by manufacturers. In many cases lower prices are made by the wholesale trade who have stocks on hand purchased at former quotations.

Adjusters Blind—

Domestic, $\frac{1}{2}$ doz. \$3.00...33 $\frac{1}{2}$ @33 $\frac{1}{2}$ &10%
North's...10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent...40%
Taplin's Perfection...55%

Ammunition—See Caps, Cartridges, Shells, &c.

Anti-Rattlers—

Burton's No. 1... $\frac{1}{2}$ doz. pr. \$1.00
Burton's No. 2... $\frac{1}{2}$ doz. pr. \$0.75
Fernald's Wire... $\frac{1}{2}$ doz. pr. \$0.75

Anvils—American—

Eagle Anvil, $\frac{1}{2}$ doz...74@74 $\frac{1}{2}$
Hay-Budden, Wrought...84@84 $\frac{1}{2}$
Horsehoe brand, Wrought...94@94 $\frac{1}{2}$
Sanson, $\frac{1}{2}$ doz...74@74 $\frac{1}{2}$
Trenton, Wrought...84@84 $\frac{1}{2}$

Imported—

Armitage's Mouse Hole...84@84 $\frac{1}{2}$
Pier Wright's...94@94 $\frac{1}{2}$

Anvil, Vise and Drill—

Millers Falls Co., \$18.00...20%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Common Double Spur...75@10@90%
Boring Machine Augers...75@10@90%
Car Bits, 12-in. twist, 60@10@10%
Jennings' Pattern Car Bits...60@90@10%
Jennings' Pattern Auger Bits...70@5@70@10%

Adams Art Auger Bit...30%
Cincinnati Bell Hanger Bits...40%
Ford's Auger and Car Bits...40@10@40@10@10%

Forster Pat. Auger Bits...25%
O. E. Jennings & Co.,
No. 10 ext. lip. R. Jennings' Hat...40@40@10%

No. 20. R. Jennings' List...50@10@90%
Russell Jennings...75@10@90%
L'Hommedieu Car Bit...50@10@15@10@5%

Pugh's Black...20%
Pugh's Jennings' Pattern...35%
Steel's Car Bits...60@10@5@70%
Wright's Jennings Bits (R. Jennings' list)...50%

Bit Stock Drills—

Standard List...80@10@10@70%
Cincinnati, for metal...50@5@50@10%
Syracuse, for wood...40%
W. & B. Wood Boring Brace Drills...40%

Expansive Bits—

Clark's small, \$18; large, \$20...50@50@10%

Lavigne's Clark's Pattern, No. 1, $\frac{1}{2}$ doz...20; No. 2, \$18...50@50@10%

Stearns's No. 1, \$20; No. 2, \$18...40@40@5%

Swan's...40@40@10%

Gimlet Bits—

Common Double Cut... $\frac{1}{2}$ gr. \$2.75@3.25

German Pattern... $\frac{1}{2}$ gr. \$5.00

Double Cut, makers' lists...50@50@10%

Hollow Augers—

Bonney's Adjustable, $\frac{1}{2}$ doz...\$16.00

Cincinnati Adjustable...25@10%

Cincinnati Standard...25@10%

Douglas...33@33@10%

Stearns, Common, No. 1...10%

Stearns, all other numbers...20@10%

Ship Augers and Bits—

Ford's...40@10@40@10@10%

Snell's...40@10@40@10@10%

L'Hommedieu's...15@10@15@10@10%

Watrous's...40@40@10%

Awl Hafts, See Hafts, Awl.

Awls—

Brad Awl... $\frac{1}{2}$ gr. \$3.00@3.35

Unhandied, Shouldered... $\frac{1}{2}$ gr. 65@70

Unhandied, Patent... $\frac{1}{2}$ gr. 70@75

Peg Awls... $\frac{1}{2}$ gr. 82@35

Unhandied, Shouldered... $\frac{1}{2}$ gr. 65@70

Scratch Awls... $\frac{1}{2}$ gr. \$1.95@3.75

Handled, Socket... $\frac{1}{2}$ gr. \$1.10 @12.00

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First quality, best brands...\$5.00@5.25

First quality, other brands...\$4.25@4.75

Jobbers' Special Brands, good quality...\$4.00@4.75

Cheap Handled Axes...\$4.75@5.25

Beveled, ad 25 $\frac{1}{2}$ doz.

Axle Grease—See Grease, Axle

Axles—

Concord, loose collar...4 $\frac{1}{2}$ 4 $\frac{1}{2}$

Concord, solid collar...5 5

No. 1 Common...3 $\frac{1}{2}$ 3 $\frac{1}{2}$

No. 1 $\frac{1}{2}$ Common, New Style, 4 4

No. 2 Solid Collar...4 $\frac{1}{2}$ 4 $\frac{1}{2}$

No. 2, 8 11 to 14...50@10@5%

No. 15 to 18...50%

No. 19 to 22...70%

Balances—

Sash—

Caldwell low list...30%

Vanderbilt...30%

Spring—

Spring Balances...50@50@10%

Chatillon, $\frac{1}{2}$ doz...\$0.60 20 30

Chatillon Straight Balances...50%

Chatillon Circular Balances...50@10%

Barb Wire—See Wire, Barb

Bars—

Steel Crowbars, 10 to 40 lb. $\frac{1}{2}$ doz...\$2 $\frac{1}{2}$ @2 $\frac{1}{2}$ @

Beams, Scale—

Scale Beams, List Jan. 12, '92...50@50@5%

Chatillon's No. 1...40%

Chatillon's No. 2...50%

Beaters—

New Dover (Dover Stamping Co.)... $\frac{1}{2}$ doz. \$7.50

Dover, Ex. Family size... $\frac{1}{2}$ doz. \$2.00

New Dover... $\frac{1}{2}$ doz. 75 $\frac{1}{2}$ @ gro. \$7.50

Dover (Standard Co.), No. 10, $\frac{1}{2}$ doz...\$5.50; No. 5, \$6.00; No. 15, \$12.00

Dover (Taplin Mfg. Co.) No. 50, $\frac{1}{2}$ doz...\$5.25; No. 100, \$4.00; No. 102, \$5.00;

No. 150, $\frac{1}{2}$ doz. \$1.50; No. 152, \$2.00.

Lebanon doz. \$2.75@3.00

Spiral... $\frac{1}{2}$ gr. \$4.25@4.50

Standard Lyon, $\frac{1}{2}$ doz. \$1.75; 3 doz. \$5.00

Wonder (S. S. & Co.)... $\frac{1}{2}$ doz. 75 $\frac{1}{2}$

Bellows—

Blacksmith—

Standard List...70@10@70@10@5%

Often sold at net prices:

Inch...30 32 34 36 38 40

Each...\$3.75 4.00 4.75 5.25 6.00 7.00

Extra Length:

Each...\$4.50 5.00 5.50 6.25 7.00 8.50

Molders—

Inch...9 10 11 12 14 16

Per doz. \$6.00 6.50 7.75 8.75 11.00 13.25

Hand—

Inch...6 7 8 9 10 12

Per doz. \$3.25 3.50 3.75 4.50 5.25 6.00

Bells—

Wrought, Sheep and Cow...60@10@70%

Kentucky...75@10%

Western...70@40@5%

Jersey...75@10%

Texas Star...75@10%

Door—

Gong, Yankee...60@10%

Lever, R. & E. Mfg. Co.'s...60@10%

Lever and Pull, Sargent's...45@10@45@10@5%

Hand—

Hand Bells, Polished...70@70@5%

White Metal...70@70@5%

Nickel Plated...50@10@60%

Swiss...60@5@60@5@10%

Miscellaneous—

Farm Bells... $\frac{1}{2}$ doz 24

Steel Alloy Church and School...50@10%

Belting

Rubber—

Common Standard...75@10@75@10@5%

Extra...70@70@10%

Standard...70@10@75%

Leather—

High Grade Oak Tanned...50@10@50@10@5%

Good Oak Tanned...60@5@60@10@10%

Bench Stops—See Stops, Bench

Benders and Upsetters,

Tire—

Brettell Tire Upsetter, \$15...50%

Green River Tire Benders and Upsetters...20%

Stoddard's Lightning Tire Upsetters...40@50%

Bicycle Goods—

Lane's Cycle Hanger...83 $\frac{1}{2}$ @5%

John S. Long's Son's 1890 1st:

Balls...50%

Parts...50%

Spokes...50@10%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Common Jap'd Sheaves...75@75@5%

Eddy's All Steel, Common Bushed...70%

Eddy's All Steel, Bronze Bushed...60@5%

Hartz All Steel, Common Bushed...50@10%

Hartz All Steel, Bronze Bushed...50@10%

Ford's Star Brand, Self Lubricating...70%

Hollow Steel, Ford's Pat. Star Brand...50@10%

Lane's Pat. Adj., Perfect Safety and Junior...30%

Stowell's Novelty, Mal. Iron...50@10%

See also Machines, Hoisting.

Boards Stove—

Market somewhat irregular.

Manufacturers quote...30@10@40%

Jobbers often sell...40@10@50%

Bolts—

Carriage, Machine, &c.—

Common, Iron, Jan. 30, '95...70@10@75@5%

Norway Iron, \$3.00, list Oct. 7, '84...75@10@75@10@5%

Phila. Eagle, \$3.00 list...85@15%

Bolt Ends, list Jan. 80, '95...70@10@70@10@5%

Machine list June 12, '96...70@10@10@75@10%

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch...3 4 5 6 8

Per doz...\$0.27 30 38 48 68

Cast Iron Bottom, Japanned:

Inch...6 8 10

Per doz...\$0.88 1.05 1.65

Cast Iron Chain, Flat, Japanned:

Inch...6 8 10

Per doz...\$1.10 1.30 1.87

Cast Iron Shutter, Brass Knobs:

Inch...6 8 10

Per doz...\$0.49 77 88

Wrought Barrel Brass Knob:

Inch...3 4 5 6 8

Per doz...\$0.44 50 61 70 1.28

Ives' Patent Door...65@65@10%

Wrought Flush...50@10@60%

R. K. Sargent's List...60@10@60%

R. K. Stanley's List...60@10@60@10@5%

Sunk, Sargent's or Stanley's List...50@10@50@10@5%

Wrought Shutter, Standard list...60@10@75@70%

Wrought Square, Standard list...75@75@10%

Stove and Plow—

Plow...70@70@10%

Stove, list August 27, 1898...70@70@10%

Tire—

Common, list Feb. 28, '93, 70@70@10%

American Screw Company:

Norway Phila., list Oct. 16, '84, 75@10%

Eagle Phila., list Oct. 16, '84...80@10%

Bay State, list Feb. 28, '83...70%

Franklin Moore Co.:

Norway Phila., list Oct. 16, '84, 75@10%

Eagle Phila., list Oct. 16, '84...80@10%

Ellipse, list Feb. 28, '83...70%

Port Chester Bolt & Nut Company:

Empire, list Feb. 28, '83...70%

Keystone Phila., list Oct. '84...80@10%

Tanged and Miscellaneous.

Buck Bros.	30%
Charles Buck.	30%
Tanged Firmers.	40% 10@50%
L. & J. White, Tanged.	25% 5%
Cold Chisels, good quality.	14@16%
Cold Chisels, fair quality.	12%
Cold Chisels, ordinary.	7@7%

Chucks—

Beach Pat., each \$8.00.	20%
Graham Patent.	33%
Morse's Adjustable, each \$7.00.	25%
Syracuse, Balz Pat.	30%
Skinner Patent Chucks:	
Combination Lathe Chucks.	40%
Drill Chucks.	30%
Independent Lathe Chucks.	40%
Improved Planer Chucks.	20%
Universal Lathe Chucks.	40%
Union Mfg. Co.:	
Combination.	40%
Czar Drill.	30%
Geared Scroll.	33%
Independent.	40%
Union Drill.	30%
Universal.	40%
Face Plate Jaws.	35%

Clamps—

Adjustable Cincinnati.	25% 10%
Adjustable, Hammers.	20% 20% 5%
Adjustable, Stearns.	30% 30% 10%
Cabinet, Sargent's.	45% 10% 50% 10%
Carriage Makers', P. S. & W. Co.	40% 10%
Carriage Makers', Sargent's.	50% 10% 50% 10%
Bevis, Parallel.	33%
Cincinnati Carpenters', &c.	25% 10%
Joiners' Clamps, Tatum's.	25% 10%
R. I. Tool Co.'s Wrought Iron.	25%
Saw Clamps, see Vises, Saw Filers.	
Stearns Malleable, with Wrought Iron.	75% 75% 5%
Stearns' Steel.	25% 10%
Tatum's Joiners' Adjustable.	25% 10%
Tatum's Quilt, Cabinet, &c.	40%
Warner's.	40% 10% 40% 10% 5%

Cleaners, Walk—

Star Socket, All Steel.	40% doz. \$4.00 net
Star Shank, All Steel.	40% doz. \$3.75 net

Cleavers, Butchers—

Foster Bros. Flat Hds., 30%; Rd. Hds., 40%	
New Haven Edge Tool Co.'s.	40%
Nichols Bros. Flat hdl., 30%; Rd. hdl., 40%	
Fayette R. Plumb.	33% 27%
P. S. & W.	33% 25% 33% 10%
L. & J. White.	25%

Clippers—

Chicago Flexible Shaft Company:	
Handy Toilet.	40% doz. \$7.20
Mascotte Toilet.	40% doz. \$8.40
Monitor Toilet.	40% doz. \$9.00
Stewart's Patent.	40% doz. \$10.00
Hotchkiss Horse Clippers, 40%:	
No. 10, \$18; No. 30, \$15.60; No. 22,	
\$13.80; No. 20, \$13.20; No. 8, \$10.80.	
Hotchkiss Toilet Clippers, 40%:	
No. 1, \$9.60; No. 101, \$10.80; No.	
201, \$10.80; No. 300, \$13.20; No.	
500, \$15.	

Clips, Axle—

Eagle and Superior 1/4 and 5-16 Inch.	75% 10% 75% 10% 25%
Norway, 1/4 and 5-16 Inch.	75% 75% 25%

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list (Globe, Kerosene, Lever,	
Bibbs, Racking, &c.)	70% 70% 5%

Coffee Mills—See Mills, Coffee.

Collars, Dog—

Brass, Pope & Stevens' list.	40%
Chapman Mfg. Company, new list.	40%
Embossed, Gilt, Pope & Stevens' list	30% 10%
Leather, Pope & Stevens' list.	40%

Combs, Curry—

Hotchkiss', List Nov. 20, '98.	25% 10%
New York Stamping Co., List Sept. 17,	
'97.	25% 10%
New Centaur Spring Curry Comb:	
With Wire Handle.	40% doz. \$1.20
With Strap Handle.	40% doz. \$1.00

Compasses, Dividers, &c.

Ordinary Goods.	70% 10% 70%
Remis & Call Co.'s:	
Dividers.	65%
Callipers, Call's Patent Inside.	55%
Callipers, Double.	70%
Callipers, Inside or Outside.	70%
Callipers, Wing.	60%
Compasses.	50% 5%
J. Stevens & T. Co.	25% 10%

Coolers, Water—

S. S. & Co.: 2-gal., \$2.79; 3-gal., \$3.20;	
4-gal., \$3.60; 6-gal., \$4.75; 8-gal.,	
\$7.20; 11-gal., \$11; 14-gal., \$14 each 60%	

Coopers' Tools—

—See Tools, Coopers'.

Cord—

Strained, Drab and Fancy, 1/2 55%.	30%
Braided, White, 1/2 14@20%	
Cable Laid Italian, 1/2 A, 18%; B, 16%	
Common India, 1/2 12@14%	
Cotton Sash Cord, twisted, 1/2 12@14%	
Patent Russia, 1/2 12@13%	
Cable Laid Russia, 1/2 13@14%	
India Hemp, Braided, 1/2 13%	
India Hemp, 1/2 9@10%	
Patent India, 1/2 10%	
Pearl Braided, cotton, 1/2 17%	
Massachusetts, White, 1/2 18%	
Eddystone Braided Cotton, 1/2 18%	
Harmony Cable Laid Italian, 1/2 18%	
Oswan Mills:	
Crown, Solid Braided White, 1/2 18%	
Braided, Giant, White, 1/2 18%	
Peerless:	
Cable Laid Italian, 1/2 16%	
Cable Laid Russian, 1/2 13%	
Cable Laid India, 1/2 11%	
Braided India, 1/2 18%	
Samson:	
Braided, Drab Cotton, 1/2 33@35%	
Braided, Italian Hemp, 1/2 31@33%	
Braided, Linon, 1/2 33@35%	
Braided, White Cotton, 1/2 27@30%	

Silver Lake:	
A quality, Drab, 40%.	15% 7%
B quality, White, 35%.	15% 7%
B quality, Drab, 35%.	15% 7%
B quality, White, 30%.	15% 7%
Italian Hemp, 40%.	15% 7%
Linen, 57%.	15% 7%

Wire, Picture—

Braided or Twisted.	85@95% 5%
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Corn Knives and Cutters

—See Knives, Corn.

Crackers, Nut—

Acme, Japanned, 1/2 gr. \$30.	40%
Acme, Nickel Plated, 1/2 gr. \$30.	20%
Turner & Seymour Mfg. Co.	50%

Cradles—

Grain.	55%
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Crayons—

White Round Crayons, 1/2 gross.	5@6%
Cases, 100 gr., \$4.50@5.00, at factory.	
D. M. Steward Mfg. Co.:	
Metal Workers', 1/2 gr. \$2.50.	20% 25%
Railroad, 1/2 gr. \$2.00.	20% 25%
Rolling Mill, 1/2 gr. \$2.50.	20% 25%
Soapstone Pencils, 1/2 gr. \$1.50.	20% 25%
See also Chalk.	

Creamery Pails—See Pails.

Creamery.

Crooks, Shepherds—

Fort Madison, Heavy.	40% doz. \$7.00
Fort Madison, Light.	40% doz. \$6.50

Crow Bars—See Bars, Crow.

Cultivators—

Victor Garden.	40% doz. \$10.00
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Curry Combs—

—See Combs, Curry.

Cutters— Meat—

American.	30%
Nos. 1, 2, 3, 4, 5, 6.	
Each.	5¢ 7¢ 10¢ 12¢ 15¢ 20¢
Connecticut, No. 0, \$2.00; No. 1, \$2.50;	
No. 2, \$3.00; No. 3, \$3.50; No. 4, \$4.00;	
No. 5, \$4.50; No. 6, \$5.00.	
Enterprise.	25% 25% 25%
Nos. 1, 2, 3, 4, 5, 6.	
Each.	3¢ 4¢ 5¢ 6¢ 7¢ 8¢
Dixon's, 1/2 doz.	\$2.50 \$4 \$6 \$8
Nos. 1, 2, 3, 4, 5, 6.	
Each.	\$14.00 \$17.00 \$19.00 \$20.00
Hale's, 1/2 doz.	70% 70% 25%
Nos. 1, 2, 3, 4, 5, 6.	
Each.	\$27.00 \$33.00 \$45.00
Home No. 1, 1/2 doz.	\$26.00 60%
Little Giant, 1/2 doz.	50% 10%
Nos. 305, 310, 312, 320, 322.	
Each.	\$35.00 \$48.00 \$44.00 \$72.00 \$68.00
Miles' Challenge, 1/2 doz.	45% 45% 10%
Nos. 1, 2, 3, 4, 5, 6.	
Each.	\$22.00 \$30.00 \$40.00
New Triumph No. 605, 1/2 doz.	\$24.00 33% 25%
Nos. 1, 2, 3, 4, 5, 6.	
Each.	100 150
Chadborn's Smoked Beef Cutter, 1/2 doz.	\$15.00 \$18.00
Nos. 1, 2, 3, 4, 5, 6.	
Each.	\$20.00 \$25.00 \$30.00
Enterprise Beef Shavers.	25% 30%

Slaw and Kraut—

Henry Dias and Son's:	
Slaw, C. Rn Grater, &c.	40%
Crout Cutters 24 x 7, 26 x 8, 30 x 9, 55%	
Crout Cutters 36 x 12, 40 x 12.	40%
Tucker & Dorsey Mfg. Co.:	
Kraut Cutters.	50% 50% 10%
Slaw Cutters, 1 Knife, 1/2 gr.	\$15 \$18
Slaw Cutters, 2 Knives, 1/2 gr.	\$20 \$27

Tobacco—

All Iron, Cheap.	40% doz. \$4.50 50%
Enterprise.	25% 30%
National, 1/2 doz.	\$21.00 30% 5%
Sargent's, 1/2 doz.	\$24.00 60% 60% 10%

Washer—

Appleton's, 1/2 doz.	\$16.00 60% 10% 60% 10% 10%
Bonney's, 1/2 doz.	\$4.25 25% 10%
Cincinnati.	25% 10%
Tatum's.	25% 10%

Diggers, Post Hole, &c.—

Gem, Improved.	40% doz. \$5.50 \$9.00
Iwan's Improved Post Hole Auger.	40% 5%
Iwan's Perfection Post Hole Digger.	40%
Samson, 1/2 doz.	\$34.00 40% doz. \$10.00
Vaughan's Post Hole Auger.	40% 25%

Dividers—See Compasses.

Dog Collars—See Collars, Dog.

Door Checks—

—See Checks, Door.

Door Springs—

—See Springs, Door.

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, 1/2 doz.	\$18; No. 2, \$12; No. 3, \$11; No. 4, \$12
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Drawing Knives—

—See Knives, Drawing.

Drills and Drill Stocks—

Common Blacksmith's Drill, each \$1.50	
Bench Drills, Stearns'.	30% 50% 10%
Blacksmith's Self-feeding, each \$7.50, 30%	
Breast, Millers Falls, each \$3.00.	25%
Breast, P. S. & W.	40% 10%
Goodell Automatic Drills.	40% 50% 10%
Ratchet, Bignall & Keeler.	30% 5%
Ratchet, Curtis & Curtis.	25%
Ratchet, Ingersoll's.	25%
Ratchet, Parker's.	25%
Ratchet, Weston's.	20% 25%
Ratchet, Whitney's.	30% 10%

Whitney's Hand Drill, No. 1, \$10.00;	
Adjustable, No. 10, \$12.00.	33%

Twist Drills—

Standard List.	60% 10% 10% 70%
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Drill Bits or Bit Stock

Drills—See Augers and Bits.

Drill Chucks—See Chucks.

Dripping Pans—

—See Pans, Dripping.

Drivers, Screw—

Balsey's Screw Holder and Driver, 1/2 doz.	25% 10% 5%
2 1/2-inch, 50; 4-in., \$7.50 6-in., \$9.40%	
Brace Screw Drivers.	25% 10% 5%
Buck Bros.	30%
Buck Bros' Screw Driver Bits.	27% 4%
Champion.	40% 10%
Dixson's Flat Blade, Electric, &c.	70%
Douglas Mfg. Co.	20% 20% 10%
Electric Spiral.	50% 10% 10% 5%
Ellis's Socket.	40% 10%
Gray's Hol. H'dle Sets, No. 3, \$12.00 50%	
Gay & Parsons' Ratchet.	35%
Goodell's Automatic.	50% 10% 10% 50% 10% 10% 5%
Hercules, W. & B.	70% 75%
Howard-Allard Spiral.	50% 10% 10% 5%
Jones Reversible.	50%
Knapp & Cowley:	
Nos. 1 and 2.	70% 10%
No. 3.	60% 10%
Nos. 4 and 50, Acme and Ideal.	60% 10%
Mayhew's Black Handle.	50%
Mayhew's Monarch.	45% 10%
New England Specialty Co.	50% 10%
New York, Manhattan and Handy.	20%
Sargent & Co.'s:	
Nos. 1, 20, 40 and 60, 50% 10% 50% 10% 5%	
Nos. 50 and 55.	50% 10% 10% 60% 5%
Screw Driver Bits.	40% doz. 50% 70%
Stanley's R. & L. Co.'s:	
No. 64, Varnished Handles.	70% 10%
Syracuse Screw Driver Bits.	40%

Egg Beaters—See Beaters, Egg.

Emery—No. 4 to No. 54 to Flour, CF

46 gr.	1.80 gr.	F.F.F.
Kegs, 1/2 doz.	4¢ 5¢	3¢
1/4 Kegs, 1/2 doz.	4¢ 5¢	3¢
1/8 Kegs, 1/2 doz.	4¢ 5¢	3¢
10 lb cans, 10		
In case, 10	6¢	5¢
10 lbs cans, less		
than 10.	10¢	8¢

Enamelled and Tinned

Ware—See Ware, Hollow.

Escutcheon Pins—

—See Pins, Escutcheon.

Extractors, Lemon Juice

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's.

Faucets—

B. & L. B. Co.:

West's Lock, Open and Shut Key	50% 10%
Burnside's Red Cedar.	50%
Burnside's Red Cedar, bbl. lots.	50% 10%
Cork Lined.	70% 5% 70% 10%
Metallic Key, Leather Lined.	65% 10%
John Sommer's Peerless Tin Key.	65% 10% 10%
John Sommer's Boss Tin Key.	50%
John Sommer's No Brand Metal Key.	60%
John Sommer's W. P. Metal Key.	40%
John Sommer's Diamond Lock.	40%
John Sommer's L. X. L. Cork Lined.	50%
John Sommer's Reliable Cork Lined.	60%
John Sommer's Common Cork Lined.	70%
John Sommer's Chicago Cork Lined.	60%
John Sommer's O. K. Cork Lined.	50%
John Sommer's Perfection Cedar.	40%
John Sommer's Cedar (in bbls.).	50% 10%
Star.	60% 60% 5%
Star's Metal Plug, new list.	40% 40% 5%
Stearns' Wood, No. 200, Wood-lined	
Key.	50% 10%
Stearns' Matchless, Wood, No. 300.	60%
Stearns' Gem, Wood, No. 400.	60% 10%
Lockport, Metal Plug, reduced list.	60% 5%
Self Measuring:	
Enterprise, 1/2 doz.	\$36.00 40%
Lane's, 1/2 doz.	\$36.00 40%
National Measuring, 1/2 doz.	\$36.00 33%

Felloe Plates—

—See Plates, Felloe.

Fifth Wheels—

Brewster.	75% 10% 80%
Derby and Cincinnati.	70% 10% 75%

Files—Domestic—

Best Brands.	70% 70% 10% 10%
Good Brands.	75% 10% 80% 5%
First Quality.	80% 50% 80% 10%
Second Quality.	80% 10% 85%

Imported—

Stubs' Tapers. Stubs' list, July 24, '97.	
30% 33% 4%	

Fixtures, Grindstone—

Net prices:	
1/2 inch.	15 17 19 21 24
Per doz.	\$2.50 2.50 2.75 3.25 4.50
Stowell's Grant Grindstone Hammer.	
1/2 doz.	\$8.00 7.00
Stowell's Grindstone Fixtures.	55% 10%
P. S. & W. Co.	50% 10% 10%
Reading Hardware Co.	3

Heavy Hammers and Sledges—

3 lb and under..... 45¢ 80&10&20
3 to 5 lb..... 36¢ 10&25
Over 5 lb..... 30¢
Wilkinson's Smiths..... 95¢@10¢

Handcuffs and Leg Irons

See Police Goods.

Handles—

Agricultural Tool Handles—

Hoe, Rake, Fork, &c..... 60&10&20&5¢
Sawel, &c., Wood D Handle..... 60&10¢

Cross-Cut Saw Handles—

Atkins..... 40¢
Champion..... 45¢@45¢10¢
Dixson..... 50¢
Ely's Perfection..... 50¢ doz. \$3.00

Wood—

Auger, assorted..... 25¢ gr. \$2.25@2.50
Auger, large..... 25¢ gr. \$2.75@3.00
Brad Awi..... 25¢ gr. \$1.75@2.00
Chisels, Tang:
Apple, assorted..... 25¢ gr. \$2.25@2.50
Apple, assorted, large..... 25¢ gr. \$2.75@3.00
Hickory, assorted..... 25¢ gr. \$2.25@2.50
Hickory, assorted, large..... 25¢ gr. \$2.50@2.75

Chisels, Socket:
Fleming, assorted..... 25¢ gr. \$1.25@1.50
Framing, asst'd large..... 25¢ gr. \$2.50@2.75
File, assorted..... 25¢ gr. \$1.25@1.40
Hammer, Hatchet, Axe, &c..... 60&10¢
Hand Saw, Varunished, 10 doz. 75¢@80¢
not Varunished..... 55¢@60¢

Plane Handles:
Jacks, 10 doz. 23¢@25¢; Jack Bolts..... 55¢@60¢
Fore, 10 doz. 35¢@38¢; Fore, Bolts..... 70¢@75¢

Hangers—

Barn Door, New Pattern, Round Groove, Regular:
Inch..... 3 4 5 6 8
10 doz..... \$1.28 1.08 2.16 2.64 3.30

Barn Door, New England Pattern, Check Back, Round Groove, Regular:
Inch..... 3 4 5 6
10 doz..... \$2.80 3.74 4.84 6.16

Bigelow & Dowse Co.:
Paragon, No. 1, \$3.50; No. 2, \$4.50;
No. 3, \$5.50 per doz.

Chicago Spring Butt Co.:
Friction..... 35¢@35¢10¢
Oscillating..... 35¢@35¢10¢
Big Twin..... 35¢@35¢10¢
Chisholm & Moore Mfg. Co.:
Advance..... 60&10¢
Cleveland..... 60&10¢
Baggage Car Door..... 50¢
Elevator..... 40¢
Railroad..... 55¢

Cronk Hanger Co.:
Roller Bearing..... 70¢
Steel Covered..... 60&10¢

Lane Bros. Co.:
Parlor, Standard..... 40&10¢
Barn Door, Standard..... 60&10¢
Covered..... 60&10¢
Cycle, 10 doz. \$12.00..... 33¢@35¢
No. 50..... 60&10¢
Parlor Door, New Model..... 40&10¢

Lawrence Bros. Co.:
Crown..... 60&10¢
New York..... 60&10¢@60&10¢5¢
Sterling..... 60&10¢

McKinney Mfg. Co.:
No. 2, Standard, \$18..... 60&10¢
No. 1, Special, \$13..... 60&10¢

Payson Mfg. Co.:
Pendulum, No. 533..... \$2.40

E. C. Stearns & Co.:
Davis Parlor Door..... 50¢@50¢5¢
Gem Parlor Sliding Door..... 50&10¢
Challenge..... 50¢@50¢5¢

Steel Single Track Parlor, \$6..... 50¢
Royal Parlor Door..... 50&10¢
Warner's Pat..... 50&10¢
Warner's Imp'd Single..... 40&10¢

Stowell Mfg. and Foundry Co.:
Badger..... 60&10¢
Baggage Car Door..... 33¢@35¢
Climax Anti-Friction..... 55¢@55¢
Elevator..... 60&10¢
Interstate..... 60&10¢
Magic..... 50&10¢
Matchless..... 60&10¢
Nansen..... 60&10¢
Parlor Door..... 50&10¢
Railroad..... 55¢@55¢
Street Car Door..... 50&10¢
Steel, Nos. 300, 400, 500..... 55¢@55¢
Wild West..... 50&10¢
Zenith for Wood Track..... 55¢@55¢

Taylor & Boggis Foundry Co.:
Kidd's..... 50¢@50¢10¢

Terry Mfg. Co.:
Ideal..... 70¢
Modern..... 70¢
Modern, Covered..... 70¢
Safety..... 70¢
Shield..... 70¢
Solid..... 70¢

Wrought..... 70¢
Van Wagoner & Williams Hdw Co.:
American Trackless..... 33¢@35¢

Wilcox Mfg. Co.:
Aurora Steel Endless..... 60¢
Bike Roller Bearing..... 60&10¢
Bike Steel Endless..... 60&10¢
C. J. Roller Bearing..... 60&10¢
Cyclo Ball Bearing..... 60&10¢
Dye Steel..... 60&10¢
Economic Single Track..... 50&10¢5¢
L. T. Roller Bearing..... 70¢
New Era..... 60&10¢
New Richards..... 60¢
O. K. Roller Bearing..... 70¢
Prindle Improved..... 60&10¢
Richards' Improved..... 60&10¢
Richards' Single Track..... 60&10¢
Wilcox Dwarf Roller Bearing..... 40&10¢

Wilcox-Ives..... 60&10¢
Wilcox Tandem Roller Bearing..... 60&10¢
Wilcox Trolley Ball Bearing..... 40&10¢
Wilcox Trolley Roller Bearing..... 50¢
Fire..... 40&10¢
Wood Track..... 60¢

Harness Menders—See Menders.

Harness Snaps—See Snaps. Hasps—

McKinney's Perfect Hasp, 10 doz. \$1.10 40&10¢

Wrought Hasps, Staples, &c.—See Wrought Goods.

Hatchets—

Blood's, Hunt's, Plumb's, Underhill's, etc..... 40&12¢@50¢5¢
Cheaper Brands..... 50&10¢@60¢

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Lull & Porter:
No..... 1 1½ 2 2½
Per doz. pair..... \$0.47 .43 .40 .35
1865 Old Pattern:
No..... 1 3 5
Per doz. pair..... \$0.55 1.00 2.00

Clark Mfg. Co.:
No. 1 Blind Hinge, Old Pattern, "Special"..... 80&10¢5¢
No. 1 Blind Hinge, "Diamond" (with tip)..... 80&10¢5¢
No. 1 Blind Hinge "Cottage" (with tip)..... 80&10¢5¢
Nos. 1, 3, 5 Blind Hinges, regular 1865 Old Pattern..... 80&10¢
Nos. 1, 3, 5 Blind Hinges, "Victor" (with double tip)..... 80&10¢
No. 50 Blind Hinge, both "Noiseless" and "Empire"..... 80¢
No. 40—60—65 Blind..... 80¢
Lull & Porter Old Style Shutter..... 80&10¢
Dixie L. & P. Shutter..... 80&10¢
Buffalo Reversible Shutter..... 80&10¢
Mortise Gravity Blind..... 50¢
Huffer..... 50&10¢@60¢
Parker..... 75&10¢@75&10¢5¢
North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50..... 75&10¢
Reading's Gravity..... 75&10¢
Sargent's, Nos. 1, 3, 5, 11, 13..... 75&10¢

Wrightsville Hdw Co.:
Acme, Lull & Porter..... 80&10¢
Buffalo Gravity Locking, Nos. 1, 3, 5..... 80&10¢5¢
Champion Gravity Locking, No. 75..... 80&10¢5¢
1865, Old Pat'n, Nos. 1, 3, 5..... 80&10¢5¢
Tip Pattern, Nos. 1, 3 and 5..... 80&10¢5¢
Double Locking, Nos. 20 and 25..... 75¢
Empire, Nos. 101 and 103..... 80¢
Niagara Gravity Locking, Nos. 1, 3 and 5..... 80&10¢
Noiseless, Nos. 50, 60, 65 and 55..... 80¢
O. S. Lull & Porter..... 80&10¢5¢
Pioneer, Nos. 060, 45 and 55..... 75¢5¢
Steamboat Gravity Locking, No. 1..... 80&10¢5¢
Stanley's Steel Gravity Blind Hinges, 10 doz. sets \$1.30..... 40&10¢

Gate Hinges—

Clark's or Sheppard's—Per doz. Sets:
No..... 1 2 3
Hinges with Latches..... \$1.40 1.75 3.25
Latches only..... 0.92 1.40 2.40
Latches only..... 0.46 .49 .50

New England:
With Latch..... 10 doz. \$1.45@1.50
Without Latch..... 10 doz. \$1.30@1.35

Re-usable Self-Closing:
With Latch..... 10 doz. \$1.70@1.75
Without Latch..... 10 doz. \$1.30@1.35

Western:
With Latch..... 10 doz. \$1.75@1.80
Without Latch..... 10 doz. \$0.75@0.75

Spring Hinges—

Holdback, Cast Iron, 10 doz. \$15.00..... 50¢@50¢5¢

Non-Holdback, Cast Iron, 10 doz. \$5.50@5.75..... 50¢@50¢5¢

J. Bardley:
Bardley's Patent Checking..... 15¢
Bommer Bros.:
Chicago Spring Butt Co.:
Chicago..... 30¢
Garden City Engine House..... 30¢
Keene's Saloon Door..... 30¢
Lawson Mfg. Co.:
Matchless..... 25¢
Matchless Pivot..... 40¢
Payson Mfg. Co.:
Oblique, Dbl. Acting..... 50¢@50¢5¢
E. C. Stearns & Co.:
Nos. 45 and 51..... 70¢
Stover Mfg. Co.:
Ideal, No. 16, Detachable, 10 doz. \$2.50..... 25¢
Ideal, No. 4..... 30¢
New Idea No. 1..... 30¢
New Idea, Double Acting..... 45¢
Van Wagoner & Williams Hdw Co.:
American..... 30¢
Columbia, No. 14..... 30¢
Columbia, No. 15..... 30¢
Crown..... 30¢
Gem..... 30¢
Knoxall..... 30¢
Oxford..... 30¢

Wrought Iron Hinges—

Strap and 1 Hinges, &c., List Mar. 15, 1899:
Light Strap Hinges..... 75, 10&25¢
Heavy Strap Hinges..... 80&10¢
Light T Hinges..... 70¢
Heavy T Hinges..... 75¢5¢
Extra Heavy T Hinges..... 80¢
Plate Hinges, 6 to 12 in. 10 doz. \$5..... 14 to 36 in. 10 doz. \$4¢
Rolled Blind Hinges, Nos. 32 and 34..... 50&10¢@50&10¢5¢
Rolled Plate..... 70&10¢@70&10¢5¢
Screw Hook 6 to 12 in. 10 doz. \$3..... 14 to 20 in. 10 doz. \$3.4¢
and Strap..... 23 to 36 in. 10 doz. \$2.4¢@2.3¢
Screw Hook and Eye:
1/2 to 1 in. diam. 10 doz. \$4¢@4.1¢
3/4 in. diam. 10 doz. \$5¢@5.1¢
1 in. diam. 10 doz. \$7¢@7.2¢

Hoes—

Eye—

D. & H. Scovill..... 35¢@35¢5¢
Scovill and Oval Pattern..... 60¢@60¢10¢
Grub, List Feb. 23, 1899..... 70&10¢@75¢

Handled—

Often sold from 1895 or old list:
Planter's, Cotton, Field, &c. 60&10¢3¢
1895 or High List.

Field and Garden..... 60&10¢5¢2¢
Ladies', Boys', Toy and Onion 75&12¢@2¢
Street and Mortar..... 75&15¢2¢
Cotton..... 75&10¢2¢@2¢
Planters..... 75&10¢2¢@2¢
Weeding..... 75&10¢5¢2¢
Ft. Madison Crucible Garden Hoe..... 75&10¢2¢
Ft. Madison Crescent Cultivator Hoe..... 33.75
Ft. Madison Mattock Hoe, 10 doz. \$4.00
Ft. Madison Sprouting Hoe, 10 doz. \$4.50
Ft. Madison Dixie Tobacco Hoe..... 75&10¢2¢
Kretzinger's Cut Easy, per doz. \$4.50
Warren Hoe..... 60&10¢

Ft. Madison Crescent Cultivator Hoe..... 33.75

Ft. Madison Mattock Hoe, 10 doz. \$4.00

Ft. Madison Sprouting Hoe, 10 doz. \$4.50

Ft. Madison Dixie Tobacco Hoe..... 75&10¢2¢

Kretzinger's Cut Easy, per doz. \$4.50

Warren Hoe..... 60&10¢

Hog Rings and Ringers—

See Rings and Ringers.

Hoisting Apparatus—

See Machines, Hoisting.

Hollow Ware—

See Ware, Hollow.

Holders—Bag—

Sensible Bag and Twine..... 50¢

Bit—

Angular, 10 doz. \$24.00..... 45&10¢

Extension..... 45&10¢

Barber's, 10 doz. \$15.00..... 45&10¢

File and Tool—

Nicholson File Holders and File Handles..... 33¢@34¢

Hooks—

Cast Iron—

Bird Cage, Reading..... 60&10¢10¢

Bird Cage, Sargent's List..... 70¢

Clothes Line, Sargent's List..... 50&10¢

Celling, Sargent's List..... 50&10¢

Clothes Line, Stowell's..... 70&5¢

Clothes Line, Reading List..... 65&10¢@65&10¢10¢

Coat and Hat, Stowell's..... 70&5¢

Coat and Hat, Reading..... 60&10¢@60&10¢10¢

Coat and Hat, Sargent's List..... 50&10¢

Coat and Hat, Wrightsville List..... 70&10¢

Harness, Reading List..... 70&10¢@75¢

Wire—

Atlas, Coat and Hat..... 50¢@50¢10¢

Belt..... 80&10¢@80&20¢

Buffalo Split Fasteners..... 40¢

Wire Coat and Hat..... 60¢@60¢5¢

Acme..... 70¢@70¢5¢

Gem..... 60¢@60¢5¢

Bright Wire Goods—See Wire.

Wrought Iron—

Box, or Case, Octagon Steel..... 10 doz. \$2.00@2.15

Cotton..... 10 doz. \$1.00@1.10

Picture, T. & S. Mfg. Co..... 75¢

Tassel, T. & S. Mfg. Co..... 50&10¢

Wrought Staples, Hooks, &c.—See Wrought Goods.

Miscellaneous—

Bush, Light, 10 doz. \$5.00; Medium, \$5.50; Heavy, \$6.00

Covert Saddlery Work's Self Locking Gate and Door Hook, 4 in. 10 doz. \$13.00; 6 in. \$17.00..... 70¢

Crown Pictures..... 70¢

Fish Hooks, American..... 60¢@60¢10¢

Grass, No. 2, \$1.65; No. 3, \$1.80; No. 4..... \$2.00

Potato and Manure..... 75&15¢

Hooks and Eyes—Brass..... 70&10¢75¢

Hooks and Eyes—Malleable Iron..... 75&10¢

Whiffletree, &c..... 4¢

Bench Hooks—See Bench Stops.

Corn Hooks—See Knives, Corn.

Horse Nails—See Nails, Horse.

Horseshoes—

See Shoes, Horse.

Hose, Rubber—

Garden Hose, 1/2-inch:
Competition..... 10 ft. 4¢@4.1¢
3-ply Standard..... 10 ft. 5¢@5.1¢
4-ply Standard..... 10 ft. 6¢@6.1¢
3-ply extra..... 10 ft. 6.1¢
4-ply extra..... 10 ft. 7¢@7.1¢
High Grade..... 10 ft. 8¢@8.1¢
Cotton Garden, 1/2 in., coupled..... 10 ft. 7¢
Good quality..... 10 ft. 8¢

Irons—

Sad—

From 4 to 10..... 10 doz. 2.35¢@2.50¢

R. B. Sad Irons..... 10 doz. 2.4¢

Chinese Laundry..... 10 doz. 4.1¢@4.2¢

Chinese Sad..... 10 doz. 3.7¢

Crown Improved, Pol., 10 doz. \$6.25..... Nickel, \$6.75

Troy Pol. Irons..... 10 doz. \$2.50

Mrs. Potts', per set:
No. 55..... 60
No. 56..... 60
No. 57..... 60
No. 58..... 60
No. 59..... 60
No. 60..... 60
No. 61..... 60
No. 62..... 60
No. 63..... 60
No. 64..... 60
No. 65..... 60
No. 66..... 60
No. 67..... 60
No. 68..... 60
No. 69..... 60
No. 70..... 60
No. 71..... 60
No. 72..... 60
No. 73..... 60
No. 74..... 60
No. 75..... 60
No. 76..... 60
No. 77..... 60
No. 78..... 60
No. 79..... 60
No. 80..... 60
No. 81..... 60
No. 82..... 60
No. 83..... 60
No. 84..... 60
No. 85..... 60
No. 86..... 60
No. 87..... 60
No. 88..... 60
No. 89..... 60
No. 90..... 60
No. 91..... 60
No. 92..... 60
No. 93..... 60
No. 94..... 60
No. 95..... 60
No. 96..... 60
No. 97..... 60
No. 98..... 60
No. 99..... 60
No. 100..... 60

New England Pressing..... 10 doz. \$6.25

Sensible Sad Irons, Pol., 10 doz. \$6.25; Nickel, \$6.75.

Soldering—

Soldering Coppers..... 10 doz. \$1.25¢
Covert Mfg. Co..... 35¢@36¢

Pinking—

Pinking Irons..... 10 doz. 55¢@60¢

Jack Screws—See Screws.

Jacks, Wagon—

Covert Mfg. Co., Steel..... 45&2¢
Daisy, 10 doz. \$12.00..... 70¢
Lockport..... 40¢@40¢10¢
Victor, 10 doz. \$20.00..... 70¢
Lane's Steel..... 30¢

Kettles—

Brass, Spun, Plain, List Jan. 10, '99, 15¢@20¢

Enameled and Tea—See Ware, Hollow.

Knife Sharpeners—

See Sharpeners, Knife.

Knives—

Butcher, Shoe, &c.—

Dick's Butcher Knives..... 40¢

Foster Bros' Butcher, &c..... 40¢

Nichols' Butcher Knives..... 50¢

Table and Pocket Cutlery and John Wilson's Butcher Knives—Net prices.

Hay and Straw—See Hay Knives.

Corn—

Ft. Madison Cut-Easy, 10 doz. \$3.25

Drawing—

Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]

Plate.....33¢
Reading.....60¢
R. & F. Mfg. Co.....60¢
Sargent & Co.....60¢
S. B. & Co., Locks, Knobs, &c.....40¢

Elevator—

Stowell's.....33¢

Padlocks—

Wrought Iron, list Dec. 3, '97, 75¢
Dog Collar, S. B. Co.....40¢
E. T. Frain:
Cast Iron, Scandinavian.....90¢
Mal. Iron, 120 line.....90¢
Mal. Iron, 110 and 125 line.....65¢
All others.....50¢
Scandinavian.....90¢
S. B. & Co.....40¢

Sash, &c.—

Fitch's Patent.....65¢
Ives' Patent.....65¢
Payson's Perfect.....70¢
Payson's Signal.....70¢
Reading.....60¢

Machines—

Boring—

Without Augers.
Upright. Angular.
Ross, Carpenters'.....\$3.50
Boss, Ship Bldrs'.....3.75
Douglas.....2.50
Jennings.....2.50
Millers' Falls.....3.00
Snell's, Rice's Pat. 2.50

Fluting—

Crown Jewel, 6 in.....\$2.50

Hoisting—

Moore's Anti-Friction Differential Pulley Block.....30¢
Moore's Hand Hoist, with Lock Brake.....20¢
Maris & Beckley (Leal Patent).....30¢
See also Blocks.

Washing—

Wayne American, No. 2, 2 doz.....\$27.50
Western Star, No. 2, 2 doz.....27.50
Western Star, No. 3, 2 doz.....30.00
St. Louis, No. 41, 2 doz.....68.00

Mallets—

Hickory.....50¢
Lignumvitae.....50¢
Timbers, Hickory and Applewood.....50¢
Fiber Head, Stearns'.....20¢

Mattocks—

List Feb. 23, 1899.....70¢

Measures—

Peck and Half Peck, See Ware, Stand and Fiber.

Meat Cutters—

See Cutters, Meat.

Menders—

Centaur Harness Menders, 2 doz.....\$6.00
Jones' Hose Menders, 2 doz.....40¢
Victor Complete Hose Menders, 2 doz.....3.50

Milk Cans—See Cans, Milk.

Mills—Coffee—

Box and Side, list Jan. 1, '88.....60¢
Net prices are often made on some goods which are lower than above discounts.
Enterprise Mfg. Co., list Jan. 17, '93.....30¢
National, list Jan. 1, '94.....30¢
Parker's Columbia and Victor.....60¢
Parker's Upright.....30¢
Swift, Lane Bros.....30¢

Mincing Knives—

see Knives, Mincing.

Molasses Gates—

See Gates, Molasses.

Money Drawers—

See Drawers, Money.

Mowers, Lawn—

Net prices are very frequently quoted

	10	12	14	16-inch
Cheap.....	\$1.65	\$1.70	\$1.75	\$1.80
Medium.....	2.50	2.75	3.00	3.25
High Grade.....	3.50	3.75	4.00	4.25

Pennsylvania and Continental.....60¢

Philadelphia:

All Styles except A and E.....70¢
Style A, all Steel.....60¢
Style E, Low Wheel.....60¢
Style E, High Wheel.....60¢
Racine.....60¢

Muzzles—

Safety.....\$12.00

Nails—

Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered, list, May 1, '92.....40¢
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

	Nos. 6	7	8	9	10
A. C.....	25¢	23¢	22¢	21¢	21¢
American.....	9¢	9¢	9¢	9¢	9¢
Ausable.....	28¢	26¢	25¢	24¢	23¢
Capewell.....	19¢	18¢	17¢	16¢	15¢
C. B. K.....	25¢	23¢	22¢	21¢	21¢
Champlain.....	28¢	26¢	25¢	24¢	23¢
Clinton Fin.....	19¢	17¢	16¢	15¢	14¢
Maud S.....	25¢	23¢	22¢	21¢	21¢
Neposet.....	23¢	21¢	20¢	19¢	18¢
Putnam.....	23¢	21¢	20¢	19¢	18¢
Vulcan.....	23¢	21¢	20¢	19¢	18¢

Picture—

Brass Head, Combination list.....60¢
Brass Head, Sargent's list.....60¢
Porcelain Head, Combination list.....50¢
Porcelain Head, Sargent's list.....50¢
Crown.....60¢
Niles' Patent.....60¢

Nippers, See Pliers and Nippers.

Nut Crackers—

See Crackers, Nut.

Nuts—List Feb. 1, 1899.

Cold Punched, Off list.
Mfrs. or U. S. Standard.
Hexagon, plain.....60¢
Square, plain.....50¢
Square, C. T. & R.....60¢
Hexagon, C. T. & R.....60¢
Hot Pressed.
Mfrs. U. S. or Nar. Gauge Standard.
Square.....60¢
Hexagon.....60¢

Oakum—

Best or Government.....50¢
Navy.....50¢
U. S. Navy.....50¢
Plumbers' Spun Navy.....50¢
F. O. B. New York. In carlots lots 4¢

Oil Tanks—See Tanks, Oil.

Oilers—

Brass and Copper.....50¢
Zinc and Tin.....70¢
Malleable, Hammers' Improved, No. 1, \$3.00; No. 2, \$4.00; No. 3, \$4.40; No. 4, \$5.00.
Malleable, Hammers' Old Pattern, same list.....50¢
Willmot & Hobbs Mfg. Co.....70¢

Openers, Can—

French.....35¢
Kio d se, Rogers & Bros.....50¢
National, 2 doz.....\$1.75
Sardine Sissors.....20¢
Sprague, Iron or Wood Handles.....20¢
Stowell's.....40¢
Streeter's:
Sensible, Japanned.....35¢
Sensible, Nickel.....35¢
Surprise.....35¢
New Sprague, Metallic Handle.....35¢
New Sprague, Wood Handle.....35¢

Packing—

Rubber—

Standard, fair quality.....70¢
Inferior quality.....70¢
Extra.....60¢
Jenkins' Standard.....60¢

Miscellaneous—

American Packing.....10¢
Cotton Packing.....10¢
Italian Packing.....10¢
Jute.....10¢
Russia Packing.....10¢

Pails—

Creamery—

S. S. & Co., with gauges.. No 1 \$5.25;
No. 2, \$5.50; 2 doz.....15¢

Galvanized—

	10	12	14
Water, Stan ard.....	\$18.00	\$21.00	\$24.00
Water, Competi- tion.....	\$17.00	\$19.50	\$22.00
Fire.....	\$22.00	\$25.00	\$28.00
Well.....	\$24.00	\$27.00	\$30.00

Pans—

Dripping—

Large Sizes.....4¢
Small sizes.....4¢

Fry—

	80¢	80¢	10¢
Standard List.....	80¢ <td>80¢ <td>10¢ </td></td>	80¢ <td>10¢ </td>	10¢
No.....	1	2	3
doz.....	\$3.00	\$3.75	\$4.50
No.....	5	6	7
doz.....	\$6.00	\$7.00	\$8.00
Acme Fry Pans.....	75¢	75¢	10¢

Roasting and Baking—

Columbian, S. S. & Co., Nos. 5, 2 doz.....\$10.00
\$10.00; \$11.50; 20, \$13.00; \$15.00
St. S. & Co. No. 08, 2 doz.....\$7.00; No. 09, \$8.50

Paper—

Building Paper—

Rosin Sized Sheathing.....500 sq. ft.
Light wt., 20 sq. ft. to lb.....\$0.35
Medium wt., 12 sq. ft. to lb.....\$0.55
Heavy wt., extra quality.....\$0.95
Barrett's Water Proof Sheathing.....\$1.35
Medium Grades Water Proof Sheath-
ing.....\$0.80
Deafening Felt, 6 and 4 1/2 sq. ft. to
lb.....\$4.25

Tarred Paper.

1 ply (roll 300 sq. ft.), 2 doz.....\$35.37
2 ply, heavy, 2 roll 100 sq. ft.....90¢
2 ply, light, 2 roll 100 sq. ft.....75¢
3 ply, heavy, 2 roll 100 sq. ft.....\$1.20
3 ply, light, 2 roll 100 sq. ft.....\$1.00

Sand and Emery—

List April 19, 1898.....50¢

Parers—

Apple—

Advance.....45¢
Baldwin.....45¢
Bonanza.....45¢
Dandy.....45¢
Eureka, 1888.....45¢
Family Bay State.....45¢
Hudson's.....45¢
Improved Bay State.....45¢
New Lightning.....45¢
Penn.....45¢
Perfection.....45¢
Reading.....45¢
Turn Table.....45¢
White Mountain.....45¢

Potato—

Saratoga.....45¢
White Mountain.....45¢

Paris Green—

Arsenic eggs or casks.....12¢
Kegs of 10 to 175 pounds.....12¢
Kegs of 14, 25 and 50 pounds.....13¢
Paper boxes 2 to 5 pounds.....13¢
Paper boxes 1 pound.....15¢
Paper boxes 1/2 pound.....16¢

Picks and Mattocks—

List Feb. 23, 1899.....70¢

Pinking Irons—

See Irons, Pinking.

Pins—

Bow—

1 1/2-inch.....45¢
2-inch.....45¢

Escutcheon—

Brass.....60¢
Iron, list Nov. 11, '93.....60¢

Pipe, Cast Iron Soil—

Factory Shipments.

Standard.....75¢
Extra Heavy.....75¢
Fittings.....80¢

Pipe, Wrought—

Factory Shipments.

List February, 1899.....60¢
Plain and Galvanized.....50¢
Screw a d socket.....50¢
Lanced 30 to 40 gal.....40¢
Cold Drawn Seamless Steel Tying.....80¢

Planes and Plane Irons—

Wood Planes—

Molding.....45¢
Bench, first quality.....50¢
Bench, second quality.....50¢
Bailey's (Stanley R. & L. Co.)
50¢

Iron Planes—

Bailey's (Stanley R. & L. Co.).....50¢
Chaplin's Iron Planes.....50¢
Miscellaneous Planes (Stanley R. & L. Co.).....50¢
Sargent's.....60¢

Plane Irons—

Standard List.....30¢
Auburn Thistle.....30¢
Buck bros.....30¢
Butcher's.....30¢
Stanley R. & Co.....50¢
L. & J. White.....20¢

Plates—

Felice.....20¢
Self-Sealing Pie Plates (S. S. & Co.).....20¢
doz.....\$2.00

Pliers and Nippers—

Acme Nippers.....50¢
Bernard's.....50¢
Paragon Pliers.....50¢
Lodi Pliers.....50¢
Elm City Fence Pliers.....35¢
Button's.....70¢
Cronk's Patent Pliers.....80¢
Cronk's Stubb's Pat. Pliers.....50¢

Cronk's Button Pattern.....70¢

Cronk's Com. Cutting and Cas Pliers.....\$20.00

Gas Pliers, 2 doz.....40¢

Best.....\$5.25

Good.....2.75

Heiler's Farriers' Pincers and Tools.....40¢

Morrill's Parallel, 2 doz.....\$12.00

P. S. & W. Cast Steel.....50¢

P. S. & W. Tinners' Cutting Nippers, add 6¢.....10¢

Utica Drop Forge & Tool Co.:
Combination Pliers.....40¢
Side Cutting Nippers.....40¢
Hall Patent Nipper.....40¢
Round and Flat Nose Pliers.....40¢
End Cutting Pliers.....40¢
Royal Blue.....40¢
Glass Pliers.....40¢
Burner Pliers.....40¢

Plumbs and Levels—

Plumbs and Levels.....70¢

Cook's.....40¢

Dixton's.....70¢

Pocket Levels.....70¢

Stanley R. & L. Co.....70¢

Stanley's Duplex.....25¢

Woods' Extension.....35¢

Poachers, Egg—

Buffalo Steam Egg Poachers, 2 doz.....\$4.00

No. 1, \$4.00; No. 2, \$9.00; No. 3, \$9.00;
No. 4, \$12.00.....50¢

Points, Glaziers—

Bulk and 10 papers.....11¢

1/2 d papers.....12¢

1/4 d papers.....12¢

Pokes, Animal—

Bishop's American.....27¢

Bishop's L. X. L.....25¢

Bishop's Steel Monarch.....25¢

Bishop's Pioneer.....25¢

Ft. Madison, Western.....25¢

Ironclad, Sunbury, with strap, 2 doz.....\$4.25

Ironclad, Sunbury, with snap, 2 doz.....\$4.00

Metallic Horse Poke.....25¢

Police Goods—

Bean's.....25¢

Tower's.....25¢

Polish—Metal—

Prestoline Liquid, No. 1 (1/2 pt.), 2 doz.....\$3.00

No. 2 (1 qt.), \$9.72.....40¢

Prestoline Paste.....35¢

U. S. Metal Polish Paste, 3 oz. boxes, 2 doz.....\$4.50

U. S. Metal Polish Paste, 5 oz. boxes, 2 doz.....\$4.25

U. S. Liquid, 8 oz. cans, 2 doz.....\$1.25

U. S. Liquid, 16 oz. cans, 2 doz.....\$1.75

Wynn's White Silk, 1/2 pt. cans, 2 doz.....\$1.50

Stove—

Joseph Dixon's, 2 gr. \$5.75.....10¢

Dixon's Plumbago.....8¢

Firestone.....8¢

Gem, 2 gr. \$4.50.....10¢

Japanese.....8¢

Jet Black.....8¢

Wynn's Black Silk, 5 d pail.....12¢

Wynn's Black Silk, 1/2 d box, 2 doz.....\$1.00

Wynn's Black Silk, 5 oz. box, 2 doz.....\$0.75

Wynn's Black Silk, 8 oz. liq., 2 doz.....\$1.00

Poppers, Corn—

Round or Square.

1 qt.....60¢

1 1/2 qt.....70¢

2 qt.....\$1.10

Quincy Corn Popper, 1 qt, 2 gr. \$17.00; 2 qt, \$22.00.

Post Hole and Tree Augers and Diggers—

See also Diggers, Post Hole, &c.

Potato Parers—

See Parers, Potato.

Pots—

Glue—

Enameled.....40¢

Tinned.....40¢

Powder—

In Canisters:

Duck, 1 lb each.....45¢

Fine Sporting, 1 lb each.....75¢

Rifle, 1/2 lb each.....15¢

Rifle, 1 lb each.....25¢

In Kegs:

Duck, 6 1/2 d kegs.....\$2.25

Duck, 12 1/2 d kegs.....\$4.25

Duck, 25 d kegs.....\$8.00

Rifle, 6 1/2 d kegs.....\$1.25

Rifle, 12 1/2 d kegs.....\$2.25

Rifle, 25 d kegs.....\$4.00

King's Smokeless:

Keg (25 d bul.).....\$20.00

Half Keg (12 1/2 d bul.).....\$10.25

Quarter Keg (6 1/2 d

Pelican, 1/2 doz. \$9.00. 15&10%
Scranton, No. 1 and 2, 1/2 doz. \$10.00
Scranton, No. 3, 1/2 doz. \$9.50

Pulleys—

Hay Fork, Swivel or Solid Eye, 1/2 doz. \$1.50
Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, 1/2 doz. \$12.00. 40%
Hay Fork, Stearns' No. 15 & 25 1/2 doz. \$1.75
Hay Fork, Stearns' No. 35 & 45 1/2 doz. \$2.00
Hay Fork, Stearns' Nos. 56 & 66, 1/2 doz. \$2.25
Hot House, Awning, &c., 60&60&10%
Japanned Clothes Line, 60&60&10%
Japanned Screw, 70&10&10%
Japanned Side, 70&10&10%
Stowell's Ceiling or End, Anti-Friction 40%
Stowell's Dumb Waiter, Anti-Friction 50%
Stowell's Electric Light, 33%
Stowell's Side, Anti-Friction, 50%
Sash (Auger Mortise):
Common Sense, 1 1/4 in., 1/2 doz., 18¢;
2 in., 20¢.
Empire, 1 1/4 in., 17¢; 2 in., 19¢
L. C., 1 1/4 in., 15¢; 2 in., 17¢
Ideal No. 13, 1 1/4 in., 1/2 doz., 15¢
Improved, 1 1/4 in., 17¢; 2 in., 19¢
Niagara, 1 1/4 in., 16¢; 2 in., 17¢
No. 26, Troy, 1 1/4 in., 16¢; 2 in., 17¢
Star, 1 1/4 in., 16¢; 2 in., 17¢
Acme, 1 1/4 in., 18¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern, 85&85&10%
Pitcher Spout, 75&75&10%
Flint & Wallings Fast Mail, 80%
Myer's Pumps, low list, 55%
Pump Leathers, all sizes, 1/2 gr. \$0.00
Contractors' Rubber Diaphragm Pump,
chokable, E. & L. Block Co., 30%

Punches—

Bemis & Call Co.'s Cast Steel Drive, 50&5%
Bemis & Call Co.'s Check, 55%
Bemis & Call Co.'s Spring, 50&5%
Bemis & Call Co.'s Springfield Socket, 45%
Niagara Hollow Punches, 55%
Niagara Solid Punches, 55%
Revolving, 1/2 doz. \$3.50&3.75
Saddlers' or Drive, good, 1/2 doz. \$0.80&0.95
Spring, good quality, 1/2 doz. \$1.70&1.80
Spring, Leach's Pat., 1/2 doz. \$1.50
Steel Screw, E. & L. Block Co., 50%
Tinnars' Hollow, P. S. & W. Co., 30&2%
Tinnars' Solid, P. S. & W. Co., 1/2 doz.,
\$1.44. 55%

Rail—**Barn Door, &c.—**

Barn Door, Light, 1 in., 1/2 doz. \$1.30
B. D., for N. E. Hangers, 1 1/2 doz. \$2.00
Small, Med. Large,
1/2 doz. \$1.60 2.00 2.50
Cronk's Double Braced Steel Rail, 1/2
foot, 3¢
Lanes' O. N. T., 1/2 doz. \$2.40
Lanes' Standard, 1/2 doz. \$3.40
McKinney's None Better, 1/2 ft. \$3.40
McKinney's Standard, 1/2 ft. \$3.40
Moore's Wrt. Bracket, Steel, 1/2 doz. \$2.40
Sliding Door, Bronzed Wrt. Iron, 1/2 ft. \$3.40
Sliding Door, Iron Painted, 1/2 ft. \$3.40
Sliding Door, Wrt. Brass, 1 1/4 in., 1/2 doz. \$3.40
Stowell's Steel Rail, 1/2 doz. \$3.40
Terry's Steel Rail, 1/2 ft. \$3.40

Rakes—**1895 or old list often used:**

C. S. Rakes, 60&10&3%
Mail-able Rakes, 70&10&3%
Cast Steel, Asso. List, 75&5&2%
Malleable, 70&10%
Buffalo Lawn and Garden, 1/2 doz. \$3.50
Fort Madison Red Head Lawn, \$3.00
Fort Madison Blue Head Lawn, \$2.85

Rasps, Horse—

Diston's, 75%
New Nicholson Horse Rasp, 70&10%
See also Files.

Razor Strops—

See Strops, Razor.

Reels—**Clothes Line—**

Stearns', 33%&10%

Fishing—

Heendryx Aluminum, German Silver,
Gold, Bronze, Silver, Rubber, Poplar,
and Salmon, Single Action, Multiplying
and Quadruple, all sizes, 25%
Heendryx Single Action Series, 102P
and PN, 202P and PN, 102P and
PN, 202P and PN, 304P and
PN, 00904P and PN, 502 and 502N,
502 and 502N, 02084N, Competitor, 50%
Heendryx Multiplying and Quadruple
Series, 3004N and PN, 4N and PN,
2904N, 2904P and PN, 002904N, 0924
and 0924N, 5009N and PN, 40&10%

Registers—

For points on Mississippi river and East:
Black Japanned, 50%
Brass Japanned, 50%
Brass Japanned, 50%
Nickel Plated, 50%
Electro Plated in Brass, &c., 40%
White Porcelain, 30%
Solid Brass and Bronze Metal, 25%
Note—Higher prices are quoted in ter-
ritory further West.

Rings and Ringers—**Bull Rings—**

Peck, Stow & W. Co.'s, 60&60&10%
Sargent's, 60&60&10%

Hog Rings and Ringers—

Blair's Rings, 1/2 gr. \$3.75&4.00
Blair's Rings, 1/2 doz. \$5.00&5.50
Brown's Rings, 1/2 gr. \$3.75&4.00
Brown's Rings, 1/2 doz. \$5.00&5.50
Hill's Rings, 1/2 gr. boxes, \$3.25&3.50
Hill's Rings, G. L., 1/2 doz. \$5.00&5.50

Perfect Rings, 1/2 gr. \$7.00&7.50
Perfect Ringers, 1/2 doz. \$7.50&8.00

Rivets and Burrs—

Copper, 40&10&50%
Norway Quality or Soft Steel,
Tinnars', 70&70&10%
Miscellaneous, 70&70&10%

Rivet Sets—See Sets.**Roasting and Baking****Pans—See Pans, Roasting and****Baking.****Rods—**

Stair, Black Walnut, 1/2 doz. 40¢
Stair, Brass, Oval or Hollow, 50&50&10%

Rollers—

Acme Stowell's Anti-Friction, 50&10%
Barn Door, Sargent's list, 60&10&10%
Lane's Stay, 33%
Stowell's Barn Door Stay, 1/2 doz. \$1.00

Rope—

The following prices are f.o.b. New
York or factory; terms, 1 1/2% for cash.

Manila, 7-16 inch and
larger, 1/2 doz. \$9.40
Manila, 1/4 and 5-16 inch, 1/2 doz. \$10.40
Manila, Tarred Rope, 15 thru 1/2
in., 1/2 doz. \$9.40
Manila Hay Rope Medium, 1/2 doz. \$9.40
Sisal, 7-16 in. and larger, 1/2 doz. \$9.40
Sisal, 3/4 inch, 1/2 doz. \$9.40
Sisal, 1/4 and 5-16 in., 1/2 doz. \$9.40
Sisal Hay Rope, 2 to 10 ply, 1/2 doz. \$9.40
Sisal Medium Lath Yarn, 1/2 doz. \$9.40
Cotton Rope:
Best, 3/4 in. and larger, 1/2 doz. \$13.40
Medium, 3/4 in. and larger, 1/2 doz. \$10.12
Common, 3/4 in. and larger, 1/2 doz. \$10.12
Jute Rope, 1/2 doz. \$5.40&6.00

Wire Rope—

List Sept. 1, '94. All kinds, 7%&3 1/2% cash

Ropes, Hammock—

Covert Saddlery Works, 70%

Rules—

Boxwood, 75&10&10&10&75&10&10%
Ivory, 40&10&10&40&10&10&10%
Lurkin's Steel, 50&10%
Lurkin's Lumber, 50&10%
Stanley R. & L. Co.,
Boxwood, 75&10&10&75&10&10&10%
Ivory, 40&10&10&40&10&10&10%

Sad Irons—See Irons, Sad.**Sand and Emery Paper****and Cloth—**

See Paper and Cloth.

Sash Cords—See Cord, Sash.**Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

Sausage Stuffers or Fill-

ers—See Stuffers or Fillers,
Sausage.

Saws—

Note—Extra 5&10% often given on
Circulars, Cross Cut, &c., and extra
5&7% on Hand, Butcher, &c.

Atkins' Circular, 50%
Atkins' Band, 50%
Atkins' Cross Cut, 50%
Atkins' Mulay, Mill and Drag, 50%
Atkins' One-Man Saw, 40&10%
Atkins' Wood Saws, 40&10%
Atkins' Hand, Compass, &c., 40%
Diston Circular Saws and Inset,
Tooth, 50%
Diston Band 2 to 14 in. wide, 70%
Diston Band 1/4 to 1 1/4, 70%
Diston Crosscuts, 50%
Diston Narrow Crosscuts, 50%
Diston Mulay, Mill and Drag, 50%
Diston Framed Woodsaws, 35%
Diston Wood Saw Blades, 25%
Diston Woodsaw Rods, 25%
Diston Hand-saws, Nos. 12, 99, 9, 16,
1100, D9, 120 77, 77, 8, 25%
Diston Hand Saws, Nos. 7, 107, 10, 10,
3, 1, 0, 0, Combination, 30%
Diston Compass, K yool, &c., 25%
Diston Butcher Saws and P. Ws., 35%
C. E. Jennings & Co.'s, 25&5&30&5%
Peace Circular and Mill, 45&10%
Peace Cross Cuts, list Jan. 1, '93, 45&10%
Peace Hand, Panel and Rip, 25&10%
Richardson's Circular and Mill, 45&10%
Richardson's X Cuts, list Jan. 1, '93,
45&10%
Richardson's Hand, &c., 25&10%
Simonds' Circular Saws, 45&50%
Simonds' Crescent Ground Cross Cut
Saws, 35%
Simonds' One-Man Cross Cuts, 40&10%
Simonds' Gang Mill, Mulay and Drag
Saws, 45&15%
Wheeler, Madden & Clemson Mfg. Co.,
Cross Cuts, list Jan. 1, '93, 45&10%
Hand, Panel and Rip, 30&10&10%
Woodrough & McFarlin,
Cross Cuts, list Jan. 1, '93, 45&10%
Hand, Panel and Rip, 25&10&10%

Hack Saws—

Diston Crosscut Blades, 25%
Diston Key-tone, 30%
Diston Hack Saw Frames, 30%
Griffin's complete, 60&50&5%
Griffin's Hack Saw Blades, 50&50&5%
Star Hack Saws and Blades, 15&10%

Scroll—

Barnes' No. 7, \$15.00. 25%
Barnes' Velocipede Scroll Saw, \$18.00. 30%
Barnes' Scroll Saw Blades, 40%
Lester, complete, \$10.00. 15&10%
Rogers, complete, \$4.00. 15&10%

Saw Frames—

See Frames, Saw.

Saw Sets—See Sets, Saw.**Saw Tools—See Tools, Saw.****Scale Beams—**

See Beams, Scale.

Scales—

Chatillon's Eureka, 25%
Chatillon's Favorite, 40%
Chatillon's Grocers' Trip Scales, 50%
Family, Turnbull's, 30&30&10%
Hatch, Counter, No. 171, good quality,
1/2 doz. \$17.00&18.00
Hatch, Tea, No. 161, 1/2 doz. \$5.75&6.00
Petouze Scales—Family, Candy,
Grocers and Postal, 35%
Union Platform, Plain, \$2.00&2.10
Union Platform, Striped, \$2.15&2.25
"The Standard" Portables, 45&50%
"The Standard" R. R. and Wagon, 60%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.),
\$4.00. 40&10%
Box, 1 Handle, 1/2 doz. \$2.00
Box, 2 Handle, 1/2 doz. \$3.00&4.00
Foot, W. E. Pratt Mfg. Co., 1/2 doz. \$1.00

Ship, No. 1, 1/2 doz. \$3.50; No. 2, \$2.25
Ship, R. I. Tool Co., 10%
Tatum's Box, 25&10%

Screen Window and Door**Frames—See Frames.****Screw Drivers—**

See Drivers, Screw

Screws—**Bench and Hand—**

Bench, Iron, 1/2 doz. 1 in., \$2.50;
1 1/4, \$2.75; 1 1/2, \$2.95
Bench, Wood, Beech, 1/2 doz. \$2.00&2.20
Hand, Wood, 30&10&40&10%
Hand, Grand Rapids, 35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Jan. 30, '95,
80%&10%
Coach and Lag, Gimlet Point, list Jan.
30, '95, 80&5&80&10&5%
Hand Rail, list Jan. 1, 1881, 85%&2%

Jack Screws—

Millers' Falls, 50&10&10%
Millers' Falls, Roller, 50&10%
P. S. & W., 40&40&10%
Sargent, 70&10&10%
Stearns', 40&10%
Tatum's, 35&10%

Machine—

List Jan. 1, '93,
Flat or Round Head, Iron, 80%
Flat or Round Head, Brass, 50%

Set and Cap—

Set (Iron or Steel), 75&75&10%
Sq. Hd. Cap, 70&70&10%
Hex. Hd. Cap, 70&70&10%

Wood—

Manufacturers' Circular Prices,
March 22, '99.

List Nov. 10, 1898.
Flat Head, Iron, 85%
Round Head, Iron, 82%
Flat Head, Brass, 8 & 10%
Round Head, Brass, 75&10%
Flat Head, Bronze, 75&10%
Round Head, Bronze, 75%
Rogers' Drive Screws, 47%
Note—An extra 5 or 10% is often given.

Scroll Saws—See Saws, Scroll.**Scythes—**

Grass and Grain, 50&10%

Scythe Snaths—

See Snaths, Scythe.

Seeders—**Raisin—**

Enterprise, 25&30%

Sets—**Awl and Tool—**

Brad Awl and Tool Sets:
Wood Hdl., 10 Awls, 1/2 doz. \$3.00
Wood Hdl., 14 Awls, 6 Tools, 1/2 doz. \$3.25&3.40

Alken's Sets, Awls and Tools:
No. 20, 1/2 doz. \$10.00. 60&10&5%
Fray's Adj. Tool Hdl., Nos. 1, \$12; 2,
\$18; 3, \$12; 4, \$9; 5, \$7. 50%
Miller's Falls, Tool Hdl., No. 1,
\$12; No. 4, \$12; No. 5, \$18. 15&10%
Stanley's Excelsior:
No. 1, \$7.50; No. 2, \$4.00; No. 3,
\$5.50. 40&10&40&10&5%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe,
1/2 doz. \$9.00

Nail—

Round, assorted, 1/2 gr. \$3.00&3.25
Octagon, 1/2 gr. \$4.00&4.75
Buck Brothers, 27%
Cannon's Diamond Point, 1/2 gr. \$12. 25%
Snell's Corrugated, Cup Pt., 50%
Snell's Knurled, Cup Pt., 60%

Rivet—

Regular list, 70&70&10%

Saw—

Alken's Genuine, 1/2 doz. \$4.50&5.00
Alken's Imitation, 1/2 doz. \$3.00&3.10
Atkin's Criterion, 1/2 doz. \$8.00
Atkin's Adjustable, 1/2 doz. \$8.00
Bemis & Call Co.'s Cross Cut, 30&5%
Bemis & Call Co.'s Plate, 20%
Bemis & Call Spring Hammer, 30&5%
Diston's Star and Monarch, 25%
Hammer, Bemis & Call Co.'s new Pat. 45%
Hammer, Seymour, Smith & Son,
1/2 doz. \$4.75

Morrill's No. 1, \$15.00. 40&20%
Nos. 3 and 4 Cross Cut, \$23.00. 40&20%
No. 5, Mill, \$31.00. 40&20%
No. 10, \$15.00. 40&20%
No. 11, \$16.00. 40&20%
Stillman,
Taintor Positive, 1/2 doz. \$15. 60%

Sharpeners, Knife—

Tanite Mills 1/2 gross, \$14.40. 25&33%
Shaves, Spoke—

Iron, 1/2 doz. \$0.85&1.00
Wood, 1/2 doz. \$2.25&2.50
Baley's (Stanley R. & L. Co.), 25&10%
Cincinnati, 25&10%
Goodell's, 1/2 doz. \$3.00. 15&10%
Stearns', 40&10%
Tatum's, 25&10%

Shears—

Cast Iron, good quality, 1/2 gross, 7-in.,
\$14; 8-in., \$16; 9-in., \$18.
Cast Iron, cheaper grade, 1/2 gross,
7-in., \$8.50; 8-in., \$9; 9-in., \$11.50.
Acme Cast Shears, 40&40&5%
Straight Trimmers, &c., 70&10&75&10%
Good quality, 30&10&65%
Second quality, 30&10&65%
Davenport Cutlery Co., 60&60&10%
Helmich's Tailors' Shears, 40&40&5%
Seymour's, list Dec. '81,
60&10&10&70&5%
Seymour's Nickel, 50&10&60&5%
Seymour's Tailors' Shears, 40&40&5%
Wilkinson's Hedge, 50%
Wilkinson's Sheep, 15%

Tinners' Snips—

Forged Handles, steel Blades, 20&10%
Malleable Handles Laid with Steel, 40%
Forged Handles, steel Blades, Berlin,
40&10%
Niagara Snips, 40%
Seymour's, 80&10&10&70&5%

Pruning Shears and Tools—

Diston's Combined Pruning Hook
and Saw, 1/2 doz. \$18.00. 25&25&10%
Diston's Pruning Hook, 1/2 doz. \$12.00
25&25&10%
Eagle Pruning Shears, 60%
John I. Henry Mfg. Company,
Henry's Genuine, Nos. 1, 2 and 22,
50&10%

Henry's Pattern, No. 20, 50&25%
Henry's Pattern, No. 21, 50&30%
Conn. Pattern, Nos. 32, 33 and 35, 50&25%
Conn. Pattern, No. 4, 50&20%
Henry's Orange Shears, 50&40%
Henry's Grape Shears, 50&20%
Henry's Tree Pruners, 75%
Levin Pruner, No. 23, \$9.00 1/2 doz. 45%
Levin Pruner, No. 24, \$12.00 1/2 doz. 45%
No. 100 Pruning Shear, 60&10%
P. S. & W. Co., 60%
Seymour's, 60&10&10&70&5%

Seymour Smith & Son:
Rockdale, 20%
New Standard Tree Pruner, 80&5%
Others, 35%
Telegraph Tree Pruner, 70&5%
Waters' Tree Pruner, 40&5%
Wheeler, M. & C. Co. Combination,
1/2 doz. \$12.00. 25&10&25&10&5%

Sheaves—Sliding Door—

Stowell's Anti-Friction, 50%
Patent Roller, 60&10&60&10&5%
Patent Roller Hatfield's, Sargent's list,
80&10&80&10&7%
Reading, 70&10&75%
R. & E., 40&10&60&10&5%
Wrightsville, Hatfield Pattern, 80&10%

Sliding Shutter—

Reading list, 70&10&75%
R. & E., 60&60&10%
Sargent's list, 60&60&10%

Shells—

Brass Shot Shells, Club, Rival, Climax,
65&2%
Brass Shot Shells, first quality, 65&2%
First quality 4, 8, 10 and 12 gauge,
25&10&2%
First quality Rival, Club and Climax
brands, 14, 16 and 20 gauge (\$7.50
list), 30&10&2%
Quick Shot, Reinforced New Victor 40&2%
Smokeless brand, 12, 10, 16 gauge,
33%&10&2%
Star, Club, Rival and Climax Brands,
33%&10&2%
Trap brand 12 and 10 gauge, 33%&10&2%

Shells, Loaded—

Shovels and Tongs—

Brass Head.....60&10&60&10&10
Iron Head.....60&10&60&10&5

Sieves and Sifters—

Buffalo Metallic, S. S. & Co., gr.:
14 16 18 18 18 20
Rued.....\$10.80 \$11.40 \$11.40 \$12.00
Tinned.....11.40 12.00 12.00 12.00
Eclipse.....gr. \$8.00 9.00
Hunter's Genuine.....gr. \$10.00 10.50
Hunter's Imitation.....gr. \$8.00 9.50
Shaker (Harrier's Pat.) Flour Sifters.....
doz., \$2.00.....25

Sieves, Wooden Rim—

Mesh 18, Nested, # doz.....\$0.70 \$0.85
Mesh 20, Nested, # doz......90 1.05
Mesh 24, Nested, # doz..... 1.05 1.20

Sinks—**Cast Iron—**

High list.....75&5075&10
Low list.....60&10&10&75

Wrought Steel—

Columbus Galv'd and Enamelled, 50&10
Columbs, Painted.....50&10
L. & G.....50&10

Slates—(From store).

"D" Slates.....50&10&10&10&5
Unexcelled Notched Slates, 60&10
Victor slates.....60 and eight 10s and 5s

Slaw Cutters—See Cutters.**Snaps Harness—**

Covert Mfg. Co.:
Deroy.....45&25
High Grade.....45&25
Jockey.....45&25
Trojan.....45&25
Covert's Saddlery Works:
Banner.....75
Crown.....75
Triumph.....75
W. & E. T. Fitch:
Bristol.....40&10
Empire.....50&5
National.....50&5
Clipper.....50&10
Champion.....40&10
Victor.....60&5
German.....50&5
Sargent's Patent Guarded.....70&1070&10&10

Snaths—

Scythe Ware.....55

Snips, Tinnners—See Shears.**Soldering Irons—**

See Irons, Soldering.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—**Tinned Iron—**

Basting, Cen. Stamp Co.'s list 75&10&80
Solid Table and Tea, Cen. Stamp Co.'s
list.....70&25

Silver Plated—

Flat Ware.....50&10&50&10&5
Wm. Rogers & Co., 50&10

Miscellaneous—

German Silver.....60&10
C. Rogers & Co.:
18 per cent. German Silver.....60
18 per cent. Nickel silver.....60
Silver Metal.....50&10
Wm. Rogers Mfg. Co.:
18 German Silver.....60
Rogers' Silver Metal.....50&10

Springs—**Door—**

Champion (Coil).....60&10&50&10&10
Gem (Coil).....20
Rubber, complete.....gro. \$15.00
Star (Coil).....33
Torrey's Rod, 39 in., # doz. \$1.10 \$1.25
Warner's No. 1, # doz. \$1.50 No. 2
\$3.40.....55
Victor (Coil).....60&10&60&10&5

Carriage, Wagon, &c.

Elliptic, Concord, Platform and Half
Scroll, 60&10&60&10&10 or fol-
lowing net prices:
Tempered Bk. Oil Tempered
1 1/4 in. 5 1/2 6 6 6 6 6 6
1 1/2 in. 5 1/2 6 6 6 6 6 6
1 3/4 in. 5 1/2 6 6 6 6 6 6
Cliff's Bolster Springs.....40&2
Cliff's Seat Springs.....# pair 45

Sprinklers, Lawn—

Enterprise.....25&30
Philadelphia No. 1, # doz. \$12; No. 2,
\$15; No. 3, \$24.....35

Squares—

Nickel plated.....List May 1, '95
Steel and Iron.....75&1075&10&5
Rosewood Hdl. Try Square and T-Bevels
60&10&10&10
Iron Hdl. Try Squares and T-Bevels
40&1040&10&10
Dialton's Try Sq. and T-Bevels.....60&10
Winterbottom's Try and Miter.....50&10

Squeezers—**Lemon—**

Wood, Common, # gr. No. 0, \$5 00;
No. 1, \$6.50; No. 2, \$10.00.
Wood, Porcelain Lined, No. 1, # doz.
\$3.25 \$3.50

Tinned Iron.....# doz. \$0.80 \$1.25
Iron, Porcelain Lined, # doz. \$3.25 \$3.50
Hotchkiss Straight Flash.....# doz. \$9.60
Jennings' Star.....# doz. \$1.85 \$1.90
King.....# doz. \$2.00

Staples—

Barbed Blind, 1/4, 3/4 and 1 in. # 5 1/2 6 1/2
Pence Staples, Galvanized, Same price
Pence Staples, Plain.....See Trd. Rep.
Grand Crossing Tack Co.'s list.....75&10

Steels, Butchers'—

Dick's.....40
Foster Bro's.....40
C. & A. Hoffmann's.....40
Nichols Bros.....40
John Wilson's, list Sep. 1, '94.....25

Steelyards.....40&40&10**Stocks and Dies—**

Blacksmith's:
Butterfield's Goods.....35&40
Waterford Goods.....35&40
Gardner.....40&10
Green River.....35
Lightning Screw Plate.....25
Little Giant.....25
Reese's New Screw Plates.....25&30
Reversible Machet.....25

Stone—**Scythe Stones—**

Pike Mfg. Co., list '95-'96.....33
Cleveland Stone Co., list Nov., '92.....33

Oil Stones, &c.

Pike Mfg. Co.:
Hindustan No. 1, # 8 1/2 8 1/2
Sand Stone.....33
Turkey Oil Stone, Extra, 5 to 8 in.....33
Turkey Slips.....\$2.00
Lily White Washita.....60
Rory Red Washita.....60
Washita Stone, Extra.....50
Washita Stone, No. 1.....40
Washita Stone, No. 2.....30
Lily White Slips.....90
Rory Red Slips.....90
Washita Slips, No. 1.....70
Washita Slips, No. 2.....70
Arkansas Stone, No. 1, 3 to 5 in. \$2.50
Arkansas Stone, No. 1, 5 to 8 in. \$3.50
Tantle Mills:
Emery Oil, # doz. \$5.00.....50&60

Stoners—**Cherry—**

Enterprise.....35&30

Stops, Bench—

Cincinnati.....25&10
Seymour Smith & Son, No. 1, \$3.50; No. 2, \$3.30
Miller's Falls.....15&10
Morrill's, # doz., No. 1, \$10.00; No. 2,
\$11.00, 40&20
Stearns'.....30&25
Tatum's.....40

Stops, Window—

Taplin's.....45

Stove Boards—

See Boards, Stove.

Stove Polish—See Polish, Stove.**Straps, Box—**

Cary's Universal.....90&10&10

Stretchers, Carpet—

Cast Iron, Steel Points.....# doz. 70 75
Cast Steel, Polished.....# doz. 22 25
Socket.....# doz. 17 15
Bullard's.....25&1040

Stuffers, Sausage—

Miles' Challenge, # doz. \$20.....50&50&5
Enterprise Mfg. Co., list Jan. 17, '98.....25
National Specialty Mfg. Co., list Jan.
1, '97.....25

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks—
American Blued.....90&3090&35
American Tinned.....90&3090&35
American Cut Tacks.....90&2590&30
Swedes Iron Tacks.....90&3590&40
Upholsterers' Tacks.....90&40100&50
Gimp Tacks.....90&40100&50
Lace Tacks.....85&3090
Trimmers' Tacks.....90&3590&35
Looking Glass Tacks.....75
Bill Posters' and Railroad Tacks.....
Hungarian Nails.....90&2590&35
Common and Patent Brads.....75&75&5
Trunk and Clout Nails:
Blued.....90&10
Tinned.....90&10

Miscellaneous—

Double Point Tacks.....90&10&50
Steel Wire Brads, R. & E. Mfg. Co.'s list
50&10&50

See also Nails, Wire.

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. \$3.00
Emerald, S. S. & Co.....60-gal. \$3.75
Queen City S. S. & Co. 60-gal. each \$4.00;
100-gal. \$3.25; 120-gal. \$3.50; 200-
gal. \$4.00; 250-gal. \$4.75
Wilson's:
No. 9.....60&10
Axtel, Force Pump.....60&10
Cone Top, Measuring Pump.....60
Cabinet, Measuring Pump.....60
Gasoline Tanks.....60&10

Tapes, Measuring—

American Asses Skin.....40&10&50
Patent Leather.....25&25&10
Steel.....35
Chesterman's.....25&25
Keuffel & Esser Co. Steel and Metallic,
new list, 1898.....35
Lufkin's Steel and Metallic.....33&33&5

Thermometers—

Tin Case.....80&10

Ties, Bale—Steel.

Standard Wire, list.....50&10&5

Ties, Wall—

Cleveland, Steel.....\$ 1000, \$10.00

Tinners' Shears, &c.—

See Shears, Tinnners, &c.

Tinware—

Stamped, Japanned and Pieced, sold
very generally at net prices.

Tire Benders, Upsetters, &c.—See Benders and Upset-

ters, Tire.

Tobacco Cutters—

See Cutters, Tobacco.

Tools—**Coopers'—**

Shaves, Cincinnati Tool Co.....20
L. & J. White.....20&20&5

Saw—

Atkins' new list.....40
Simonds'.....33

Transom Lifters—

See Lifters, Transom.

Traps—Game—

Newhouse.....50&50&10
Oneida Pattern.....80&80&5
Sensible.....33&33&10

Mouse and Rat—

Dandy.....# doz. \$1.75
Marty French Rat and Mouse Traps
(genuine):
No. 1, Rat.....# doz. \$15.00
No. 2, Rat.....# doz. \$5.85
No. 3, Rat.....# doz. \$4.50
No. 4, Mouse.....# doz. \$4.30
No. 5, Mouse.....# doz. \$3.00
Hotchkiss Metallic Mouse, 5-hole traps,
doz. 6 1/2; in full cases, # doz. 60
Hotchkiss Imp. Rat Killer.....# gr. \$12.50
Hotchkiss New Rat Killer.....# gr. \$12.50
House, Wood, Choker, # doz. holes 8 1/2
Mouse, House Wire, # doz. \$1.50
Mouse, Sensible.....# doz. \$3.00
Rat, Decoy, # gr. \$10.00.....10
Rat, Sensible.....33
Schuyler's Rat Killer, No. 1, # gr. \$13.50;
No. 2, # gr. \$15.00

Fly—

Balloon, Globe or Acme.....# doz. \$1.25; # gr. \$13.50
Harper, Champion or Faragon.....# doz. \$1.75; # gr. \$16.50

Triers—

Butter and Cheese.....25

Trimmers, Spoke—

Bonney's No. 1, # doz. \$2.75; No. 2,
\$3.75
Cincinnati.....25&10
Douglas', # doz. \$9.00.....20
Stearns'.....20&10

Trowels—

Garden.....70
Di-ston Brick and Pointing.....30
Di-ston Plastering.....25
Di-ston "Standard Brand" and Gar-
den Trowels.....40
Pease's Plastering.....30
Rose Brick and Plastering.....30
Woodrough & McParlin, Plastering.....25&10

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40
Daisy Stove Trucks, Improved pattern
doz. \$18.00

Tubs, Wash—

No. 1 2 3
Galvanized, # doz. \$4.00 4 60 5.00
Galvanized S. S. & Co. with Wringer
Attachment, # doz. No. 10, \$6.35
No. 20, \$6.75; No. 30.....\$7.50

Twine—**Binder—**

White Sisal, 500 feet to b.....90
Standard, 500 feet to b.....90
Manila, 600 feet to b.....100
Pure Manila, 600 feet to b.....100

Miscellaneous—

Flax Twine— BC. B.
No. 9, 1/4 and 1/2 B. Balls.....24
No. 12, 1/4 and 1/2 B. Balls.....17
No. 15, 1/4 and 1/2 B. Balls.....17
No. 24, 1/4 and 1/2 B. Balls.....17
No. 30, 1/4 and 1/2 B. Balls.....16
Chalk Line, Cotton, 1/2 B. Balls.....16
Cotton Mops, 6, 8, 12 and 15 b to doz.
Cotton Wrapping, 5 Balls to b.....90
American 2-Ply Hemp, 1/4 and 1/2 B.
Balls.....90
American 3-Ply Hemp, 1 B. Ball.....90
American 3-Ply Hemp, 1 B. Ball (Spring
Twine).....10&11

India 2-Ply Hemp, 1/4 and 1/2 B. Balls

(Spring Twine).....90
India 3-Ply Hemp, 1 B. Balls.....90
India 3-Ply Hemp, 1 1/2 B. Balls.....70
2, 3, 4 and 5-Ply Jute, 1/2 B. Balls.....60
Nelson Line Linen, 1/2 B. Balls.....40
No. 264 Mattress, 1/4 and 1/2 B. Balls.....60
Wool.....60

Vises—

Bonney's Saw Vises.....50&10
Solid Box.....60&10&60&10&5

Parallel—

Bonney's.....50&5
Fisher & Norris Double Screw.....15&10
Hollands.....40&40&10
Massey's Perfect.....20&25
Massey's Clincher.....40&40&10
Merrill's.....25
Miller's Falls.....45&10
Parker's.....20&25
Parker's Oval Slide.....50&10
Parker's Victor.....30
Prentiss.....20&25
Sargent's.....70&1070&10&10
Simpson's Adjustable.....40
Stephens.....25&30
Toles' Woodworking.....25
Trenton.....40&540&10

Saw Filers—

Bonney's No. 2 & 3, \$15.00.....50&10
Cincinnati.....25&10
Di-ston's D 3 Clamp and Guide, # d. 3,
\$30.....25
Reading.....40&10
Stearns' Common, No. 0, 1, 2 & 3.....50
Stearns' Rubber Jaw, No. 10 & 33, 39 1/2
Wentworth's Rubber Jaw, No. 1, 2
and 3.....40

Miscellaneous—

Signal & Keeler Combination Pipe
Vise.....60&5

Parker's Combination Pipe:

87 Series.....60
187 Series.....60&5
No. 870.....40

Wads—Price Per M.

U.M.C. & W.R.A.—B.E., 11 up. 604
U.M.C. & W.R.A.—B.E., 9 & 10. 70
U.M.C. & W.R.A.—B.E., 8. 80
U.M.C. & W.R.A.—B.E., 7. 80
U.M.C. & W.R.A.—P.E., 11 up. \$1.00
U.M.C. & W.R.A.—P.E., 9 & 10. 1.35
U.M.C. & W.R.A.—P.E., 8. 1.50
U.M.C. & W.R.A.—P.E., 7. 1.50
Ely's B.E., 11 and larger. \$1.70
Ely's P.E., 13 to 20. \$3.00

Wagon Boxes—

See Boxes, Wagon.

Wagon Jacks—

See Jacks, Wagon.

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List.....60

Cast Iron, Hollow—

Stove Hollow Ware—
Ground.....60&1060&10&10
Unground.....70&570&10
White Enamelled Ware—
Maslin Kettles.....75&1050
Boilers and Saucepans.....60&60&5
Tinned Boilers and Spans.....60&5
See also Pots, etc.

Enamelled—

Agate and Granite Ware, list Jan. 1,
'94, revised Jan. 2, '95.....40&10
Second Quality.....70&1070&10&10
Ironclad Enamelled Ware, Old list.....70
Never Break Enamelled.....60&10

Kettles—

Galvanized Tea Kettles—
Inch..... 6 7 8 9
Each.....40 45 50 55

Steel Hollow Ware.

Avery Spiders & Griddles.....70&70&5
Avery Kettles.....60&60&10
Never Break Spiders and Griddles.....
Never Break Kettles.....70&70&5
Solid Steel Spiders & Griddles.....70&70&5
Solid Steel Kettles.....60&60&10
Solid Steel Ware, Enamelled.....50&10

Silver Plated Hollow—

William Rogers Mfg. Co.....40&10&5

Washboards—

Solid Zinc: # doz.
Crescent, family size, bent frame. \$2.75
Red Star, laundry size, stationary
protector.....\$4.00
Double Zinc Surface:
Diamond, family size, stationary
protector.....\$2.75
Saginaw Globe, family size, station-
ary protector.....\$2.50
Wilson, family size, bent frame.....\$2.50
Single Zinc Surface:
Nalad, protector, family size, open
back perforated.....\$2.15
Diamond, protector family size,
ventilated back.....\$2.10
Saginaw Globe, protector, family
size, ventilated back.....\$2.00
Wilson, bent frame, family size,
ventilated back.....\$2.00
Eagle, protector, family size, venti-
lated back.....\$1.85

APRIL 12, 1899.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

Heavy Cast Scrap.....	gross ton	\$8.7
Stove Plate Scrap.....	gross ton	\$6.0

